# Adjusting Regulation to Competition: Toward a New Model for U.S. Telecommunications Policy

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*This Article explains the monopoly rationale for conventional approaches to telecommunications regulation, demonstrates how the U.S. telecommunications market has changed since the Telecommunications Act of 1996, and then examines whether, in the light of those changes, the conventional approach remains an appropriate paradigm for U.S. telecommunications policy. This Article finds that the general answer is no, and that ex ante regulation that depends for its rationale on monopoly market structure should give way to ex post intervention against specific, anti-competitive acts on the model of conventional antitrust and competition policy. The Article finds, however, that certain kinds of regulation—notably interconnection—still have a role to play in advancing telecommunications policy objectives. This study's conclusions thus challenge the argument that policymakers should wait until market conditions become more competitive to deregulate. But it also challenges claims that the market has developed to the point that Congress should eliminate all industry-specific regulation and regulatory authority in the U.S. telecommunications market. This Article instead proposes eliminating ex ante regulation that depends on monopoly for its rationale in favor of ex post competition enforcement, but makes allowance for other regulation in those specific circumstances where experience proves such intervention necessary and effective for protecting consumer welfare.*



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## Introduction

The telecommunications market in the United States has changed dramatically over the last decade. The communications options for average consumers have expanded beyond the offerings of their incumbent telephone companies to include new telephone carriers, email, wireless telephone service, and voice over the Internet.[1] Yet strikingly, much of the regulatory approach to local telecommunications that arose in the monopoly era remains in place today.

This Article examines whether conventional approaches to monopoly regulation continue to be good policy given the current market for telecommunications services in the United States. By "conventional" monopoly

1 By early 2005, 99.8% of the U.S. population lived in counties offering some kind of digital mobile telephone service; 97% of the U.S. population lived in counties offering at least three different mobile telephone operators. *See* FCC, ANNUAL REPORT AND ANALYSIS OF COMPETITIVE MARKET CONDITIONS WITH RESPECT TO COMMERCIAL MOBILE SERVICES 46, 77 (2005), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-05-173A1.pdf [hereinafter TENTH CMRS REPORT].

regulation I mean a regime of specific rules that sets out, in advance, requirements and restrictions on business conduct by firms in a particular industry. My focus is on economic regulation as opposed to public-safety or distributional regulation, although I shall touch on those issues in the Article as well. Economic rules in telecommunications have involved rate regulation and tariff-filing obligations, requirements on scope and quality of service, limits on entry into related lines of business, duties to deal with new entrants, and other prospective governance of business behavior.[2] Such rules apply mostly, if not exclusively, to large incumbent firms and much less, if at all, to new entrants or fringe firms in the industry.[3] The question to be addressed is whether, in the light of changes in telecommunications markets over the past decade, ex ante, dominant-firm restraints remain an appropriate mode of telecommunications regulation.

This Article finds that the general answer is no, and that ex ante regulation that depends for its rationale on monopoly market structure should give way to ex post intervention against specific, anti-competitive acts on the model of conventional antitrust and competition policy, with resort to ex ante rules only where experience provides a compelling case that such rules are necessary to protect consumer welfare. The Article finds, however, that certain kinds of regulation—most notably basic network interconnection rules—still have a role to play in advancing telecommunications policy objectives. This study's conclusions thus challenge the argument that policymakers should wait until market conditions become more competitive to deregulate. But it also challenges claims that the market has developed to the point that Congress should eliminate all industry-specific regulation and regulatory authority in the U.S. telecommunications market. In arguing for a transformative shift away from mandatory ex ante rules, this Article thus does not recommend legislation that would prohibit ex ante regulation altogether. This Article instead proposes an approach that would eliminate ex ante regulation that depends on monopoly for its rationale in favor of ex post competition enforcement; but that would allow for other regulation (e.g. interconnection) in specific circumstances where experience proves such intervention necessary and effective for protecting consumer welfare.

Part I of this Article explains how the purposes, rationale, and potential benefits of telephone regulation have depended on the monopoly structure of the local telecommunications market. Part II examines how the local telephone market has transformed over the past decade, arguing that the market no longer resembles the monopoly that gave rise to existing regulations. Part III examines the regulatory implications of the change in market structure for local

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2 *See* PAUL W. MACAVOY, THE FAILURE OF ANTITRUST AND REGULATION TO ESTABLISH COMPETITION IN LONG-DISTANCE TELEPHONE SERVICES 35-81 (1996).

3 *Id.* at 61-69.

telecommunications, describing why the changing balance of regulatory costs and benefits accompanying the change in market structure warrants a new regulatory approach—an approach that emphasizes post-conduct enforcement against anticompetitive activities instead of ex ante restrictions and requirements on firm activities. Part III also discusses precedents and evidence from previous episodes of deregulation in the United States—both in telecommunications and in other industries—and explains how those experiences and evidence support a deregulatory shift in U.S. telecommunications policy sooner rather than later. Part IV concludes.

## I. Historical Goals and Underlying Assumptions of Telecommunications Regulation

This Part of the Article addresses the goals of telecommunications regulation over the course of the past century. It then explains the monopoly assumptions that underlie those objectives and the means through which state and federal regulators have pursued them.

### A. *Telephone Regulation Before 1996*

For most of the past century, the U.S. telecommunications industry has been subject to monopoly regulation. There are good reasons to believe that, early on, the United States could have avoided telephone monopolies in favor of a competitive marketplace. By 1908, AT&T and its collected rivals each carried about 16 million telephone calls per day.[4] But AT&T denied interconnection to its rivals, preventing subscribers of competing carriers from making calls to, or receiving calls from, AT&T's subscribers. Unable to promise their subscribers access to AT&T's larger base of customers, individual competitors struggled and, in the years leading up to World War I, AT&T aggressively acquired those weakened rivals.[5] By the 1920s telecommunications in the United States had become the business of state-franchised monopolies operated by AT&T (known as "the Bell System") and regulated by state public utility authorities.[6]

If the reasons for having a telecommunications monopoly were slippery, the reasons for regulating that monopoly were not: The market came to contain a dominant provider of an important service, a provider that had apparent

4 *See* BUREAU OF THE CENSUS, U.S. DEP'T OF COMMERCE, HISTORICAL STATISTICS OF THE UNITED STATES: COLONIAL TIMES TO 1970, pt. 2, at 783 (1975).

5 *See* Howard A. Shelanski, *A Comment on Competition and Controversy in Local Telecommunications*, 50 HASTINGS L.J. 1617, 1626-27 (1999) (explaining the failure of the government to prevent AT&T's strategy and the rise of the Bell System monopoly).

6 *See* ARTHUR W. PAGE, THE BELL TELEPHONE SYSTEM 2-3 (1941) (describing how, by 1919, forty-five states and the District of Columbia had commissions charged with telephone regulation).

power to set prices and control output.[7] It seemed clear that AT&T would, if unregulated, use that power to fatten profits at the expense of consumers, to refrain from serving less profitable customers, and to extend market power into new or adjacent lines of business.[8] From these perceived hazards emerged three principal objectives of telephone regulation.

1. Retail Price Regulation

The first objective of regulation, in response to the pricing power that monopolists typically wield, was to keep retail prices "reasonable" and below monopoly levels. For most of the twentieth century, state agencies and the FCC pursued this goal through oversight and constraint of the retail rates the AT&T companies could charge for calls in and between their respective state service areas.[9] Regulators came to focus on setting rates that would provide the carrier with a reasonable rate of return on its costs of providing service.[10] In a typical rate proceeding AT&T would file a tariff with a proposed rate, provide cost data, and receive approval to charge rates that brought a return typically in the range of 11% over those costs.[11] Because of concerns about the harmful incentive effects of such "rate-of-return" regulation (see *infra* Section III.A), in the 1980s state and federal regulators began to experiment with alternative forms of incentive-based regulation. Specifically, a number of jurisdictions began to use a method of price regulation known as "price caps," in which regulators capped prices carriers could charge, but allowed carriers to keep any profit they could manage within the caps.[12]

Although local telephone rates were subject only to state regulation, the Federal Communications Commission (FCC) had authority (often only weakly exercised) to regulate interstate, long-distance calling rates at the federal level.[13] While AT&T charged flat monthly fees for local service, it charged by the minute for long-distance service, and the FCC allowed AT&T to set long-distance rates well above cost for the purpose—at first implicit and later expressly stated—of providing profits AT&T could use to cross-subsidize local

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7 *See* STUART M. BENJAMIN ET AL., TELECOMMUNICATIONS LAW AND POLICY 614-18 (2001).

8 *See, e.g.*, PAGE, *supra* note 6, at 3 (describing how the public felt a need for control of prices and service as monopoly came to supplant competition in telephone service).

9 *See* Policy and Rules Concerning Rates for Dominant Carriers, 4 F.C.C.R. 2873, 2884 (Apr. 17, 1989). For an example of such regulation at the state level, see, e.g., Illinois Bell. Tel. Co. v. O'Connell-Diaz, No. 05 C 1149, 2006 U.S. Dist. LEXIS 70221, at *10 (N.D. Ill. Sept. 28, 2006) (discussing history of traditional rate regulation in Illinois).

10 *Id.*

11 *See, e.g.*, *In re* AT&T, 86 F.C.C.2d 221 (1981), for a typical example of such a filing and rate of return.

12 4 F.C.C.R. at 2893-96.

13 *See, e.g.*, *In re* AT&T Charges for Interstate Tel. Service, 51 F.C.C.2d 619 (1975), for an example of such interstate rate regulation by the FCC.

rates in support of universal service policies (see below).[14] Although virtually no federal regulation of rates for interstate (i.e., long-distance) telephone service remains, regulation of retail rates for local telephone service is the exclusive domain of state authorities under Section 152(b) of the Communications Act of 1934 and remains very much in place.[15]

2. Universal Service Regulation

The second objective of monopoly regulation was to guarantee access by all Americans to affordable telephone services.[16] This "universal service" objective was a response to the concern that some citizens might not share in the benefits of telephone service because they were not profitable for carriers to serve.[17] In granting monopoly franchises to AT&T, state regulators found an opportunity to demand things in return. One of the key conditions of the monopoly grants was that the Bell System would provide quality service to all consumers, and do so at fair and generally equal rates.[18]

Universal service regulation accomplished two things. First, the policy arguably sped the deployment of a high-quality telecommunications network to virtually all Americans. Second, it led to rate structures through which some kinds of consumers and services subsidized other consumers and services. For example, it costs carriers less to serve customers in dense urban areas than to serve more dispersed customers in rural areas.[19] Under universal service policies, however, both sets of subscribers typically pay the same monthly rate for local service. That rate is above the carrier's cost of providing telephone service to urban customers but below the carrier's cost of serving rural households; the profits from the former subsidize the losses from the latter.[20] Similar cross-subsidies have occurred from business customers to residential customers and from long-distance telephone service to local service.[21] Universal service thus became deeply enmeshed in the monopoly structure of telecommunications because the subsidy flows on which the policies depended were much easier to organize within a single entity than among competing service providers.

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14 BENJAMIN ET AL., *supra* note 7, at 618-19.

15 47 U.S.C.S. § 152(b) (2006).

16 BENJAMIN ET AL., *supra* note 7, at 618-19.

17 The term "universal service" did not have such public-spirited origins. It was instead a corporate slogan of AT&T's chairman, Theodore Vail, who meant by "universal service" that AT&T would be the sole provider of service everywhere. It was, in other words, a term for the company's ambitions of monopoly. *See id.*

18 *Id.* at 619.

19 *Id.*

20 *Id.* at 618-19.

21 *Id.*

3. Limiting Monopoly Scope

The third objective of telecommunications regulation was to control the scope of AT&T's monopoly. The Bell System encompassed not just the state-by-state franchise monopolies over local service, but also nationwide long-distance telephone service, customer equipment (i.e., telephones), and network equipment (i.e., switches and other elements of the phone system). How many of these different markets should AT&T be able to monopolize? Partly through regulation, but also through antitrust enforcement, the scope of AT&T's monopoly flowed and ultimately ebbed over the course of the last century.

For example, AT&T early on required monthly rental fees for the use of telephone handsets as part of the carrier's local rate tariffs.[22] AT&T thus prevented competing telephone manufacturers from entering the market because consumers would have to pay the competitor's handset price in addition to the rental fee already included in AT&T's local tariff. When new kinds of customer-end equipment became available on the market, early answering machines for example, AT&T placed "foreign attachment" prohibitions in its local tariffs that barred customers from attaching any non-AT&T equipment to the network.[23] In 1947 the FCC questioned such restrictions and struck down AT&T's prohibition on the attachment of devices to record telephone calls.[24] AT&T did not even manufacture such devices but evidently wished to reserve that market for itself. The FCC ruled the company's monopoly could not extend so far.[25]

Over the next several years the FCC vacillated over AT&T's ability to bar competing "customer premises equipment" (CPE), allowing states to bar an early answering machine called the Jordaphone in 1954[26] and, in a bizarre decision, upholding AT&T's prohibition on use of the Hush-a-Phone, a simple device that covered a telephone's mouthpiece to increase privacy, in 1955.[27] But following the U.S. Court of Appeals' sharp reversal of the Hush-a-Phone decision, the trend turned strongly against AT&T's extension of its monopoly into CPE. In 1968 the Commission found AT&T's tariffs that flatly prohibited customers from attaching non-AT&T equipment to be improperly discriminatory.[28] While the FCC did continue to approve some tariffs that had attachment prohibitions, the agency began to scrutinize such provisions carefully and skeptically; the Commission eventually went to court to preempt

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22 *Id.* at 624.

23 *Id.* at 624-25 (excerpting from PETER W. HUBER ET AL., FEDERAL TELECOMMUNICATIONS LAW (1992)).

24 Use of Recording Devices in Connection with Telephone Service, 11 F.C.C. 1033 (1947).

25 *Id.* at 1048.

26 *In re* Jordaphone Corp. of Am., 18 F.C.C. 644 (1954).

27 *In re* Hush-A-Phone Corp., 20 F.C.C. 391, 397 (1955).

28 Carter v. AT&T, 13 F.C.C.2d 420 (1968).

state laws that prohibited or restricted attachment of customer-supplied (as opposed to AT&T-supplied) equipment to the network.[29]

The FCC also pared back the extent of AT&T's control over the long-distance market. Beginning with a seemingly innocuous ruling in 1959 allowing private, commercial use of certain radio frequencies,[30] the Commission opened the door for a small company known as Microwave Communications Inc. (later MCI) to provide fixed, wireless transmission of long-distance phone calls.[31] The FCC, with the courts playing a role, eventually rejected AT&T's arguments against allowing entry into the long-distance telephone market and issued a series of orders authorizing MCI to provide service that increasingly competed with AT&T's long-distance business.[32]

AT&T's resistance to long-distance competition was central to the Justice Department's 1974 antitrust suit that culminated in the 1984 break-up of AT&T.[33] That break-up, known as the AT&T "divestiture," divided the Bell System into seven, independent "Regional Bell Operating Companies" (RBOCs) providing local phone service, and a separate company, retaining the AT&T name, that provided long-distance service and manufactured equipment.[34] After divestiture, AT&T's equipment and long-distance monopolies were finished. Local exchange service remained a monopoly, but one that no longer had a corporate connection to the provision of long-distance service or equipment. The RBOCs and other incumbent local carriers continued to be regulated as monopolies in accordance with the three objectives just described:[35] States regulated their retail rates (increasingly through price caps), a combination of state and federal rules maintained universal service subsidies and obligations, and a set of restrictions from the 1984 consent decree limited the RBOCs' permitted lines of business to ensure their monopoly power did not extend beyond local exchange service.[36] This situation held without significant change until the Telecommunications Act of 1996.

### B. *Regulation Under the Telecommunications Act of 1996*

Congress designed the Telecommunications Act of 1996 to dismantle exclusive local-exchange franchises.[37] In important respects, however, the 1996

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29 North Carolina Utils. Comm'n. v. FCC, 537 F.2d 787, 793 (4th Cir. 1976).

30 Allocation of Frequencies in the Bands Above 890 MHz, 27 F.C.C. 359 (1959).

31 Glen Robinson, *The Titanic Remembered: AT&T and the Changing World of Telecommunications*, 5 YALE J. ON REG. 517, 523 (1988).

32 *See id.* at 527-34.

33 BENJAMIN ET AL., *supra* note 7, at 641.

34 United States v. AT&T, 552 F. Supp. 131, 141 (D.D.C. 1982), *aff'd*, 460 U.S. 1001 (1983).

35 Other local incumbents included the many small, and few larger (e.g., GTE and SNET), independent phone companies that had coexisted with AT&T (generally by serving areas AT&T had chosen not to enter).

36 *Id.* at 224.

37 BENJAMIN ET AL., *supra* note 7, at 715.

Act did less to remove monopoly regulation than to create new rules with the apparent intention of fostering conditions that would allow the gradual deregulation of local telecommunications over time. These new rules are known collectively as the Act's local competition provisions.

The most fundamental of the local competition provisions is the duty of every telecommunications carrier "to interconnect directly or indirectly with the facilities and equipment of other telecommunications carriers."[38] Such interconnection prevents any incumbent carrier from creating a barrier to entry for new entrants or other carriers by refusing to deliver another carrier's calls to the incumbent's customers, and vice versa. Congress moreover barred the incumbents from accomplishing the same thing through the pricing of interconnection, requiring that telecommunications carriers interconnect at incremental cost for the purpose of originating and terminating each other's traffic.[39]

Second, the Act requires incumbent local exchange carriers to allow competitors to use parts of the incumbents' own networks to provide competing service.[40] Thus, if new entrants would be competitively "impaired" without access to, say, the incumbents' central-office switches,[41] the Act grants them access to the incumbents' switches on an "unbundled" (i.e., standalone) basis and at cost-based rates. This section is known as the 1996 Act's "network unbundling" provision and the parts of the incumbent networks to which it provides competitors access are known as "unbundled network elements," or "UNEs." Mandatory unbundling may apply to any network element to which access is "technically feasible."

Third, the Act also creates the possibility for new entrants to enter a local exchange market with no facilities at all of its own. The Act's "resale" provision requires incumbent local carriers to sell their service wholesale, at regulated rates, to new carriers that wish to enter the market as resellers of the incumbent's service.[42]

The 1996 Act did take two important steps whose deregulatory impact was immediate. First, the Act eliminated state monopoly franchises as a matter of law, so that new competitors no longer faced any significant legal barriers to providing local telephone service.[43] Given the decades of state-protected monopoly franchises enjoyed by local exchange incumbents, this federal preemption is significant and averts the need for a would-be entrant to go from state-to-state to gain such entry rights on a piecemeal basis. Second, the Act

38 47 U.S.C. § 251(a) (2000).
39 47 U.S.C. § 251(c)(2) (2000).
40 47 U.S.C. § 251(c)(3) (2000).
41 Switches are the computers that route calls to and from subscribers.
42 47 U.S.C. § 251(c)(4) (2000).
43 47 U.S.C. § 253(a) (2000).

provided for removal of the line-of-business restrictions on incumbent local exchange companies, which had been in place since 1984. The Act freed the RBOCs to offer information services (although initially only through a separate subsidiary),[44] and allowed the RBOCs to provide long-distance service conditional on their compliance with the 1996 Act's local competition provisions.[45]

The Act thus combined deregulatory measures with an elaborate new set of network access and wholesale pricing regulations for the local carriers. It also left in place retail price regulation and expanded universal service policies.[46] The 1996 Act can usefully be thought of as scaffolding put in place to support the construction of a competitive telecommunications market. In this respect the 1996 Act was part of an emerging transformation in policy toward regulated industries in which regulators shifted focus from rules designed to control monopoly behavior to rules designed to foster the introduction of competition that would uproot the monopoly altogether and, in turn, obviate the need for costly economic regulation in the future.[47] Although the 1996 Act sets no date for any of its local competition rules to expire, it allows the FCC to require unbundling only if market conditions are such that a new entrant would be competitively impaired without access to a given UNE.[48] The FCC has interpreted this provision as requiring periodic review and modification of its unbundling rules.[49] The Act thus implicitly provides for some evolution in the scope of its local competition rules as markets become more competitive. As the next Section will explain, however, the unbundling rules themselves, like other forms of telecommunications regulation discussed above, are nonetheless premised on the existence of monopoly in the provision of local telecommunications services.

### C. *The Monopoly Assumptions of Regulation*

The rationale for the kinds of regulation discussed above depends largely on the monopoly structure of the local telephone market. First, consider rate regulation. The government does not regulate prices of the vast majority of goods and services sold in the United States. It instead leaves market competition to determine firms' prices, product quality, and output levels. Actual or potential rivalry from other firms drives any given firm away from the high monopoly price level that exists in the absence of competition and thus

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44 47 U.S.C. § 272 (2000).

45 *Id.*

46 47 U.S.C. §§ 252(d), 254(a), (b) (2000).

47 *See* Joseph Kearney & Thomas W. Merrill, *The Great Transformation of Regulated Industries Law*, 98 COLUM. L. REV. 1323 (1998).

48 47 U.S.C. § 251(d) (2000).

49 Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, 16 F.C.C.R. 22,781 (Dec. 20, 2001) (known as the UNE "triennial review" proceeding).

eliminates the need for government to step in to protect consumers from market power.

Even in markets dominated by a single firm, the government generally does not regulate that firm's economic conduct. Abbot Laboratories is the only producer of a key protease-inhibitor booster for HIV treatment, yet the government does not control how much Abbot charges for the drug.[50] Only one organization offers the standardized LSAT test that law school applicants must take, yet that organization is free to set its own terms;[51] and the Phillies are the only major professional sports team in Philadelphia during the summer months but government does not limit the team's ticket prices. Indeed, the examples of unregulated monopolies or dominant firms are numerous and diverse and can be found in industries from entertainment to pharmaceuticals. The government leaves such firms alone for several sound policy reasons, perhaps the most prominent of which is captured by Judge Learned Hand's classic statement in *United States v. ALCOA* that "[t]he successful competitor, having been urged to compete, should not be turned upon when he wins."[52] The context of *ALCOA* was punishment of monopoly through the antitrust laws, but the rationale applies equally to regulation of monopoly. Even where monopoly exists, government should use price regulation sparingly because regulation has harmful incentive effects that can impede the development of competition. Government-imposed price limits may diminish incentives for the incumbents or potential challengers to innovate, reduce profit opportunities that attract new entrants, and ultimately entrench both a particular provider and a particular technology in the market, to the detriment of consumers.

In most cases, therefore, legislatures and competition authorities leave the erosion of monopoly power to the process of competitive entry or consumer substitution over time. Government only steps in to regulate prices of those few monopolies in which competitive entry is considered either impossible or undesirable, typically on the theory that the market is a "natural monopoly."[53] To be sure, the government intervenes in markets more frequently through application of antitrust laws and competition policies that block anticompetitive efforts by firms to gain or maintain market power.[54] But enforcement to stop behavior on a case-by-case basis after it has proven harmful (ex post intervention) is very different in purpose and effect from a broad rule that

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50 *U.S. Refuses to Intervene on AIDS Drug Price*, N.Y. TIMES, Aug. 5, 2004, at A16.

51 *See generally* http://www.lsac.org.

52 United States v. Aluminum Co. of Am. (ALCOA), 148 F.2d 416, 430 (2d Cir. 1945).

53 A "natural monopoly" occurs when a firm's costs-per-consumer decline over the entire range of demand such that entry of a second provider would raise the average cost of serving customers in the relevant market.

54 For an illustration, see the list of cases antitrust cases that the Antitrust Division of the Department of Justice has filed over the past decade at Antitrust Division, U.S. Dep't of Justice, *Antitrust Case Filings*, http://www.usdoj.gov/atr/cases.html (last visited Nov. 14, 2006).

establishes what firms can and cannot do in advance of specific conduct and regardless of the competitive effect of that conduct in a specific instance (ex ante regulation).

Universal service regulation was also tied to the monopoly structure of the local telephone market, although more in its form than in its purpose. Funding universal service through implicit subsidy flows by which profits from serving some customers pay for losses from serving others is hard to rationalize or sustain outside the monopoly context. Competition is the enemy of such "cross-subsidies" because new entrants rationally target low-cost, high-profit customers and avoid the high-cost, low-profit (or negative-margin) customers, thereby diminishing the revenues on which the implicit cross-subsidy flows depend. Direct subsidies, however, do not necessarily fail or lose their policy rationale when a market becomes competitive. Regulators may aim subsidies directly at high costs where they exist, and need not require that firms get necessary universal service funds indirectly from profits earned elsewhere. Competition immediately reduces profits but may only slowly reduce costs so, as markets change, a more direct subsidy mechanism is essential. Direct subsidies for particular consumers therefore exist in many markets, such as housing, food, and education, where providers may not have much market power but where prices may still be too high for some consumers to have access.[55]

Accordingly, even in a competitive market, state or federal policymakers might continue to find it socially undesirable for rural telephone customers to pay rates that cover their full, high costs of service. If this is the case, government could, for example, directly subsidize the carriers providing service to those consumers by telling competing phone companies that a particular subsidy amount could be claimed by any carrier serving a particular customer. The carriers would then compete to provide the lowest rate that attracts the customer and is profitable in combination with the subsidy. Alternatively, carriers could bid for the subsidy itself with the lowest bidder receiving the subsidy for serving the area at issue.[56] The key point is that it is the funding mechanism for universal service, not the underlying policy, that must change in response to competition. So, a distributional policy for telecommunications that accomplishes universal service objectives is not tied to monopoly; but a mechanism for achieving those policies that applies only to a particular firm or set of firms, and that depends on implicit subsidy flows, is tied to monopoly market structure.

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55 *See, e.g.*, Food Stamp Act, 7 U.S.C. §§ 2011-36 (2000); National Housing Act, 12 U.S.C. § 1701 (2000) (providing mortgage subsidies); 20 U.S.C. § 1018 (2000) (governing delivery of financial assistance to students pursuing higher education).

56 *See, e.g.*, Paul Milgrom, Lecture at the Royal Swedish Acad. of Sci., Procuring Universal Service: Putting Auction Theory to Work (Dec. 9, 1996), http://faculty-gsb.stanford.edu/wilson/archive/E542/classfiles/Milgrom_Procuring_Universal_Service.PDF.

Finally, some means of regulating monopoly scope are also closely tied to single-firm market structure and lose much of their basis as competition emerges. At the most obvious level, once a firm has rivals it no longer has any monopoly to extend. In a competitive market, a firm's efforts to bundle products and services in a way that harms consumers will be disciplined by the rival offerings of the firm's competitors. Consider a tariff that required any phone service customer also to rent its telephone from the carrier. If that packaging somehow allowed the carrier to provide either the phone or the service at particularly low cost to customers, then customers would gain from the package. But if the bundle were just a way for the carrier to gain extra profits, under competitive conditions consumers would turn to other carriers that either offer a cheaper bundle or do not require consumers to buy a bundle at all. Similarly, restrictions on the lines of business a firm can enter make economic sense only if the firm has market power over some essential input—for example, "bottleneck" access to the local exchange—that allows extension of power in one market into another market. Such leveraging of the local network bottleneck into market power over long distance was part of the theory behind the break-up of AT&T and the imposition of line-of-business restrictions on the RBOCs.[57] As alternative paths into the local exchange arise through competition, control over bottleneck facilities diminishes and along with it so does the premise for ex ante restrictions on a firm's entry into adjacent markets.

Defining the relevant market is an important step in determining whether an apparent bottleneck actually confers market power. A network might control access to its own facilities, but unless its facilities are the only option for reaching the consumer the bottleneck does not confer monopoly power. A bridge across a river is not a powerful bottleneck if there is another bridge just downstream. Similarly, a telecommunications network does not control access to, or communication among, subscribers if subscribers can both reach out and be reached over an alternative network; a cable system operator cannot control the flow of programming to subscribers if those subscribers can get the same programs via satellite; and a railroad cannot regulate the flow of goods to a market if those same goods can travel on trucks. Therefore, "bottlenecks" that might appear to exist when markets are defined narrowly in terms of their underlying technologies do not confer market power or provide a basis for regulation if alternative technologies provide economically feasible substitutes.

57 United States v. AT&T, 552 F. Supp. 131, 170-74 (D.D.C. 1982), *aff'd sub nom.* Maryland v. United States, 460 U.S. 1001 (1983).

D. *Monopoly and the Rationale for the 1996 Act*

The interconnection and network unbundling/wholesale pricing provisions of the 1996 Act facilitate competitive entry into the local exchange market. The two sets of provisions differ in one critical respect, however. The rationale for mandating interconnection for the exchange of traffic is not necessarily tied to the monopoly structure of the local telephone market; the network unbundling and wholesale pricing rules, on the other hand, are premised on the existence of local exchange monopolies.

To see the difference, consider first interconnection. Imagine that a new entrant were to build a complete telephone network to compete with the incumbent. Immediately upon completion of the new network, the incumbent would no longer have a monopoly over facilities but would still have a monopoly over customers. The incumbent could maintain that monopoly simply by refusing to transmit calls to its subscribers if those calls originated with a subscriber of the new network. The first prospective customer of the new network would be unable to make any local calls, making the new entrant's service nearly worthless. Even if the new carrier could sign up a few customers, few additional subscribers would switch from the incumbent because of the greater "network benefit" the incumbent offers.

A network benefit is the increase in value of a product or service that arises as more people use the product or service.[58] Of course, most products do not produce a network benefit. I do not benefit directly because others like the same kind of pizza or ride the same brand of bicycle. But telephone service is one of a small set of products whose value to every individual consumer increases with the number of additional consumers of the same product. The more subscribers there are the more people any individual subscriber can call and the more valuable the service is. Absent interconnection, a firm leading in market share can use its larger network benefit to attract customers and disadvantage smaller rivals. Interconnection not only erodes monopoly power, but preserves competition and prevents an industry from "tipping" back to a dominant-firm structure every time one competitor gains a market lead and, hence, a larger network externality that it can exploit to attract consumers. Interconnection ensures all firms compete to offer a common network benefit rather than to leverage a proprietary one into increased market power. Interconnection obligations therefore apply to all telecommunications carriers in the market, not just perceived monopolists.[59]

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58 For helpful discussions of network effects, see Joseph Farrell & Paul Klemperer, *Coordination and Lock-in: Competition with Switching Costs and Network Effects*, *in* 3 HANDBOOK OF INDUSTRIAL ORGANIZATION (M. Armstrong & R. Porter eds., forthcoming), *available at* www.paulklemperer.org; Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CAL. L. REV. 479 (1998).

59 47 U.S.C. § 251(a)(1) (2000).

In contrast, consider the 1996 Act's network unbundling provisions. The soundness of those rules depends on the assumption that, absent access to the incumbent's facilities, new entrants will not be able to offer service to customers in the first place.[60] This assumption is only valid if incumbents have both an economic scale that imposes a barrier to entry and a monopoly over the facilities new entrants could lease to overcome that entry barrier. Those conditions would not hold if the incumbent faced competition from other carriers providing services that consumers could effectively substitute for conventional local exchange service—in other words, they would not hold under competition. For example, competition would show both that entry barriers were not so high that they prevented competition against the incumbent, and that potential entrants could use other sources or types of facilities to set up their service offerings. Such entry would more fundamentally undermine the notion that network access rules are needed to foster competition. Thus, the 1996 Act's unbundling rules depend both for their purpose and their structure on the existence of monopoly in the local telecommunications market. Consistent with that logic, they apply only to incumbent local exchange carriers and not to all providers (as the interconnection rules do).[61] The same argument applies to the wholesale pricing provisions of the 1996 Act.[62]

The regulatory paradigm embedded in the most recent major telecommunications legislation is therefore, like that which came before it, premised on assumptions of underlying monopoly power. Yet, although the underlying law and its associated regulatory approach have not changed since 1996, the U.S. telecommunications market has, and significantly so. The next Part will address how the underlying structure of the telecommunications market has changed, and Part III will then examine the consequences of those changes for U.S. telecommunications policy.

## II. U.S. Telecommunications Since 1996: A Market Transformed

The discussion so far has examined the conventional objectives and justifications for telecommunications regulation and has explained how those objectives and the benefits of regulation depend to varying extents on the existence of a monopolistic market structure. This Part of the Article examines how the structure of the local telecommunications market has changed since Congress passed the 1996 Act and argues that the premise of local monopoly, although valid in 1996, is no longer so today.

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60 BENJAMIN ET AL., *supra* note 7, at 717-18 (explaining the local competition provisions as enabling entry where otherwise it might not be in competitors' economic interests).

61 47 U.S.C. § 251(c)(3) (2000).

62 47 U.S.C. § 251(c)(4) (2000).

What has changed? Most fundamentally, the menu of telecommunications services available to consumers has expanded dramatically in the last ten years. This expanding menu has, in turn, transformed how consumers communicate and what they demand in terms of telecommunications options. To highlight the change, it is worth recalling the choices available to a typical customer in 1996. At that time, one person wishing to communicate a message to another had four potential choices: (1) pick up the telephone, (2) send a letter by mail, (3) place a wireless call by cell phone, or (4) log onto a computer and send an email. In reality, however, the vast majority of American consumers only used options (1) and (2). For, while roughly 95% of households had conventional land-line telephone service in 1996, only 44 million subscribers had wireless telephones, less than 40% of households owned personal computers, and less than 19% of households had Internet access.[63]

By 2003-04, the years for which the most comprehensive data was available as this Article went to press, the telecommunications landscape had changed remarkably. The most important overall phenomenon has been the evidence that consumers now see alternative modes of communication as substitutes for each other. Such "inter-modal" competition is reflected by several measures of how people consume telecommunications services.

### A. *Wireless Telephone Service*

The most dramatic change in U.S. telecommunications has been the rise in wireless telephone usage in the years since Congress passed the 1996 Act. At the end of 1996 there were 44 million wireless subscribers in the United States and they used their phones to talk for an average of 125 minutes per month.[64] By the end of 2004, there were 185 million wireless subscribers in the United States who used their phones to talk for an average of 580 minutes per month.[65] Today there are more wireless subscriptions than conventional landline telephone subscriptions in the United States.[66] Moreover, wireless subscribers pay less now than they did at the time of the 1996 Act's passage. Wireless bills fell by 34% from 1997 to 2004 even with the dramatically increasing usage.[67] Competition in the mobile wireless market continues to drive operators to attract customers through price and non-price means.[68] There are currently four facilities-based, nationwide wireless carriers operating in the United States.[69]

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63 FCC, TRENDS IN TELEPHONE SERVICE, 11-3 tbl.11.1, 16-3 tbl.16.1 & 2-10 chart 2.9 (2005), *available at* http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/trend605.pdf [hereinafter TRENDS IN TELEPHONE SERVICE 2005].

64 *Id.* at 11-3 tbl.11.1 & 11-6 tbl.11.3.

65 TENTH CMRS REPORT, *supra* note 1, ¶ 5.

66 TRENDS IN TELEPHONE SERVICE 2005, *supra* note 63, at 7-3 tbl.7.1.

67 TENTH CMRS REPORT, *supra* note 1, ¶ 157.

68 *Id.* ¶¶ 101-08.

69 *Id.* ¶ 25 (listing five carriers, but Sprint and Nextel have since merged).

Almost all U.S. consumers (97% of the population) have access to service from three or more wireless competitors.[70]

There are a number of reasons to believe that wireless service is increasingly coming to substitute for conventional, local telephone service. First, the FCC has found that 62% of all Americans, and over 90% of those between 20 and 49 years old, own cell phones.[71] As already mentioned, those subscribers have been using their wireless phones for an increasing number (580) of minutes per month. This increase has been accompanied by a marked decline in the amount of landline calling consumers have been doing. In 1996 American consumers made an average of 143 minutes of long-distance calls per month; by 2003 that figure had fallen to 71 minutes.[72] In 1996 Americans placed 504 billion conventional local telephone calls; in 2003 the number had dropped to 425 billion.[73] The inference of wireless substitution for wireline service is strong, and is corroborated by other data. The FCC has reported that 5.5% of Americans live in wireless-only households, a figure that rises to 14% for 18 to 24 year-olds.[74] Yet such figures understate the true degree of substitution. As the Commission has found, "[e]ven when not 'cutting the cord' completely, consumers appear increasingly to choose wireless service over traditional wireline service, particularly for certain uses."[75] The Commission went on to cite data that one third of all households receive more than half of their calls wirelessly and 9% of households receive almost all their phone calls on their wireless phones.[76]

Not surprisingly, the rise of wireless telephone service has put heavy pressure on traditional telephone service. Not only have the number of calls and minutes on the landline networks declined, but the number of traditional phone lines itself has also dropped, and quickly. FCC data show that by each of three different measures of line count, the number of conventional telephone lines fell from 2000 through 2003 (the year of the latest available annual data).[77] The trend appears to be continuing, as the number of landlines dropped at a quarterly rate of 1.2% in the second and third quarters of 2004.[78]

The degree of direct substitution of wireless for wireline telephony understates the competitive significance of wireless service. The average American consumer is comfortable with, and equipped with, wireless service. While most people may continue to subscribe to wireline service, conventional

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70 *Id.* ¶ 2.
71 *Id.* ¶ 195.
72 TRENDS IN TELEPHONE SERVICE 2005, *supra* note 63, at 14-3 tbl.14.2.
73 *Id.* at 10-4, tbl.10.2.
74 TENTH CMRS REPORT, *supra* note 1, ¶ 196.
75 *Id.* ¶ 197.
76 *Id.*
77 TRENDS IN TELEPHONE SERVICE 2005, *supra* note 63, at 7-3 tbl.7.1.
78 TENTH CMRS REPORT, *supra* note 1, ¶ 197.

local service providers likely have no power to cut the quality or raise the price of their service; to do so would be to invite consumers to pick up their mobile phones more often or simply to cut their landline subscriptions. With at least three wireless competitors vying for the business of nearly every person in the United States, consumers without wireless service could easily get it should they be dissatisfied with their conventional provider. The Pew Internet and American Life Project found that by 2003, 21% of all American wireless phone users had already considered canceling their conventional home telephone service.[79] With so many consumers so close to the margin about keeping their conventional telephone service, and with wireless service now even more prevalent among individuals than landline service, the once-powerful local telephone incumbents have little ability to exercise market power over local telecommunications. That ability to wield market power is further diminished in light of other competitive alternatives.

### B. *Internet-Based Alternatives to Conventional Telephony*

Consider next Internet-based alternatives to conventional telephone calls. By 2003, the share of households with computers had grown to 61.8% and those with Internet access to 54.6%.[80] Residential customers and people who worked in small businesses together had nearly 26 million high-speed Internet access lines by the end of 2003, a figure that leapt to over 35 million lines by the end of 2004.[81] Importantly, most of these high-speed lines do not involve wireline telephone networks at all; nearly 60% of high-speed Internet access takes place over cable networks.[82]

American consumers have turned the Internet into a primary platform for communicating with each other. Whereas, not long ago, real-time, interactive contact with another person required picking up a telephone, the largest three on-line "instant messaging" providers, AOL, MSN, and Yahoo, recently reported having, respectively, 51.6 million, 27.3 million, and 21.9 million unique, monthly users.[83] Such widespread instant messaging, which requires only basic (rather than high-speed) Internet access, means that a tremendous amount of communication is now occurring without the need for a telephone call. The Nielson data cited above builds on earlier evidence of instant messaging and email usage. A Pew Internet and American Life Project cites

79 John B. Horrigan, Consumption of Information Goods and Services in the United States, at vi (2003), *available at* http://www.pewinternet.org/pdfs/PIP_Info_Consumption.pdf.

80 TRENDS IN TELEPHONE SERVICE 2005, *supra* note 63, at 2-10 chart 2.9.

81 FCC, High Speed Services for Internet Access, tbl.3 (2005), *available at* http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/hspd0705.pdf.

82 TRENDS IN TELEPHONE SERVICE 2005, *supra* note 63, at 2-3 tbl.2.1.

83 Verne Kopytoff & Benjamin Pimentel, *Yahoo, Microsoft Link Instant Messages: Users Will Be Connected by End of June Next Year*, S.F. CHRON., Oct. 13, 2005, at C1, *available at* http://www.sfgate.com/cgi-bin/Article.cgi?file=/c/a/2005/10/13/BUG8VF7E8M1.DTL (citing data from Nielsen/NetRatings).

survey results showing that over 80 million adult (over 18 years old) consumers in the U.S. used instant messaging in 2003, and that they did so for an average of over 300 minutes per month.[84] The Stanford Institute for the Quantitative Study of Society released a study in June 2004 reporting survey data that show American consumers to use email for an average of over 25 minutes per day. These data suggest that on-line communications methods have become a primary means of communication.

The falling price of Internet access has made such modes of communication accessible to the mass market. So too have the expanding array of places and devices from which consumers can use the Internet, as well as the falling price of computers. Nearly all public libraries provide Internet access and by 2004, most even had broadband access.[85] Consumers can now reach the Internet through cell phones and an array of small hand-held devices. With respect to home computer access, from 1996 to 1999 computer prices fell by over 32% per year in the United States.[86] Since 1999, computer prices have only continued to fall, dropping over 16% in 2005 alone.[87]

Cable-modem Internet service is of particular competitive significance for incumbent local telecommunications providers for several reasons. First, as consumers increasingly turn to email and instant messaging as a primary means of communication, cable operators compete vigorously with the phone companies and their broadband DSL offerings to attract that traffic. As mentioned, cable operators have been quite successful in that effort, capturing the majority of the U.S. residential broadband access market.[88]

Second, cable modem competition and broadband penetration more generally has helped to drive a wedge between voice telephone service and the physical infrastructure over which it runs. For decades, voice service was uniquely connected with the underlying telephone network. Some more recent services like cable telephony (switched telephone service running over cable plant) similarly require the service provider to own, or purchase access to, a physical network to provide voice service. With the rise of broadband Internet access, however, a set of voice communication providers has arisen that owns no network infrastructure at all and instead provides voice service as an application that consumers can reach over the Internet. Such voice-over-Internet-protocol (VoIP) services, like wireless providers, provide a voice

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84 Eulynn Shiu & Amanda Lenhart, How Americans Use Instant Messaging 6 (2004), *available at* http://www.pewinternet.org/pdfs/PIP_Instantmessage_Report.pdf.

85 *See* INFORMATION USE MANAGEMENT AND POLICY INSTITUTE, PUBLIC LIBRARIES AND THE INTERNET (2005), http://www.ii.fsu.edu/plinternet_findings.cfm.

86 Dale W. Jorgensen, *U.S. Economic Growth in the Information Age*, ISSUES IN SCI. & TECH. ONLINE EDITION, Fall 2001, at tbl.1.

87 *See* BUREAU OF LABOR STATISTICS, CONSUMER PRICE INDEX: OCTOBER 2005 (2005), *available at* http://www.bls.gov/news.release/archives/cpi_11162005.pdf.

88 TRENDS IN TELEPHONE SERVICE 2005, *supra* note 63, at 2-3 tbl. 2.1.

option that does not always, but can and often does, entirely bypass the incumbent local telephone networks.

The technology for VoIP is improving rapidly and use is rising accordingly. A range of services, from free computer-to-computer calling to more sophisticated offerings that operate over conventional handsets are available. Projections show that within a few years 20 million households will have use of VoIP without any conventional telephone connection. But, as the mainstream press has recently chronicled, the services are already available to those who want them and VoIP may take off much more quickly than anticipated.[89] With computers having become inexpensive and ubiquitous, with competing ways to get broadband access, and with the separation of voice service from physical infrastructure through VoIP offerings, consumers have yet another option in addition to wireless for working around conventional local telephone service.

### C. *New Wireline Telephone Competitors*

The incumbent local telephone companies face not only competition from other modes of communication, but also from new landline telephone providers. In 1999, competitive local exchange carriers (CLECs) that entered the market as a result of the 1996 Act served only about 8 million lines—4.3% of the local exchange market.[90] By December 2004 that figure had increased to nearly 33 million lines—18.5% of the local exchange market.[91] Over the same period, the incumbent local exchange carriers (ILECs, the former monopolies) saw their aggregate line count fall from roughly 181 million to 145 million, partly as a result of competition from CLECs.[92] The change in ILEC market share is reflected in revenues, with ILECs falling from 94% to 85% of local telephone revenues from 1999 to 2003 as CLECs took the corresponding share.[93] The FCC reports that about 97% of U.S. households reside in zip codes served by at least one CLEC.[94] Even though the telecommunications market has grown significantly in recent years with the rise of the Internet, local service revenues for the ILECs have remained flat in nominal terms—and hence declined in real terms. ILECs altogether had local service revenues of about $103 billion in 1999 and about $104 billion in 2003; and their overall (including, e.g., long-distance service) revenues declined from $112 billion to

89 Thomas J. Fitzgerald, *How to Make Phone Calls Without a Telephone*, N.Y. TIMES, Sept. 1, 2005, at C9.

90 FCC, LOCAL TELEPHONE COMPETITION: STATUS AS OF DECEMBER 31, 2004, tbl.1 (2005) *available at* http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/lcom0705.pdf [hereinafter JULY 2005 LOCAL COMPETITION REPORT].

91 *Id.*

92 *Id.*

93 TRENDS IN TELEPHONE SERVICE 2005, *supra* note 63, at 8-11 tbl.8.7.

94 JULY 2005 LOCAL COMPETITION REPORT *supra* note 90, at 4.

$109 billion over that same period.[95] Indeed, the consumer price index (CPI) for telecommunications services declined by 0.1% from 1994 to 2004, compared with CPI increase for all goods of 2.5% over that same period.[96]

The story of competing landline carriers—"intramodal" competition—is a bit more complicated than that of intermodal (i.e., wireless and Internet) competition because of the fact that some degree of CLEC entry depends on ILEC facilities to which CLECs gain access pursuant to the UNE provisions of the 1996 Act. Competition coming solely over CLEC-owned facilities is less than that reported above: CLECs served about 26% of their customers entirely over their own facilities at the end of 2004 and depended on undbundled network elements (see *supra* Section I.B) to serve 58% (the remainder being resale of ILEC services).[97] But one cannot conclude from this data that CLEC competition is weak. Facilities-based telephone competition may seem comparatively low partly because regulation has made an attractive alternative available. The FCC itself concluded that the model by which many states calculated UNE prices may well have distorted the entry path chosen by CLECs and biased them toward UNE-based, as opposed to facilities-based, competition.[98] Indeed, facilities-based entry appears to be on the rise as UNE availability decreases in the wake of recent FCC unbundling decisions; suggesting that CLECs are economically capable of providing more facilities-based service than they have chosen to provide given the option of UNEs.[99]

The most important thing to keep in mind, however, is that it is not up to CLECs alone, or even primarily, to impose competitive discipline on the ILECs. The 1996 Act may have seen CLECs as the main hope for local competition, but intermodal competition from wireless and Internet based telecommunications are providing even greater challenges to the former telephone monopolies. The combination of inter- and intramodal competition have greatly diminished the prospects for any exercise of market power by the ILECs.

### D. *Other Competing Technologies*

Other technologies are on the horizon. Broadband over power lines, wireless Internet access, and satellite services are developing to different degrees and may soon make significant inroads. These technologies are not speculative; all that is in question is the extent to which they will affect

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95 TRENDS IN TELEPHONE SERVICE 2005, *supra* note 63, at 8-11 tbl.8.7.

96 *Id.* at 12-3 tbl.12.1.

97 JULY 2005 LOCAL COMPETITION REPORT, *supra* note 90, at tbl.3.

98 Review of the Commission's Rules Regarding the Pricing of Unbundled Network Elements and the Resale of Service by Incumbent Local Exchange Carriers, NPRM, 18 F.C.C.R. 18,945, 18,975 (Sept. 15, 2003) [hereinafter Review of the Commission's Rules].

99 JULY 2005 LOCAL COMPETITION REPORT, *supra* note 90, at tbl. 3.

competition in the telecommunications market and the broadband access market in particular. In 1999, there were 312,000 subscribers to broadband over fiber or powerline networks; by 2004 that figure had grown to about 698,000.[100] Similarly, in 1999 there were about 50,000 satellite or terrestrial wireless broadband subscribers; by 2004 the figure had increased more than eightfold to over 420,000.[101] These figures will likely increase, particularly as wireless Internet access networks (commonly called "WiFi" networks) proliferate across the country and provide alternatives to cable and telephone networks.

But even putting aside these developments and looking just at services currently available on a wide scale, the U.S. telecommunications market looks nothing like the monopoly of a decade ago. The long-distance telephone market has all but disappeared as a viable line of business, with wireless and on-line communications providing preferable substitutes for consumers. AT&T, which a decade ago had just managed to emerge from dominant-firm regulation, has sold its business units piece by piece and has now seen its brand name taken over by one of its RBOC progeny. To be sure, consumers still overwhelmingly subscribe to local telephone service because it is reliable and inexpensive. But more Americans than have a home wireline phone now also carry a wireless phone in their pockets. A large number of those consumers also have cable modem service or are reached by networks that provide it. Under such circumstances, there is little ability for local exchange carriers to act like the protected monopolies they once were.

## III. Implications of the Empirical Evidence for Telecommunications Regulation

What do the data imply for telecommunications regulation? Some say that the increasingly competitive and diverse market illustrated in the previous Part eliminates the basis for any regulation at all.[102] Others say, to the contrary, that the market has expanded but that the essential market power of incumbent local telephone monopolies remains unchecked.[103] The facts do not solidly or unambiguously support either position. The market is certainly not perfectly

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100 FCC, HIGH SPEED SERVICES FOR INTERNET ACCESS: STATUS AS OF DECEMBER 31, 2004, *supra* note 81, at tbl.1.

100 TRENDS IN TELEPHONE SERVICE 2005, *supra* note 63, at 2-3 tbl.2.1.

101 *Id.*

102 *See, e.g.*, Randolph J. May, Testimony Before the House Energy and Commerce Committee (Mar. 30, 2006), *available at* http://www.pff.org/issues-pubs/testimony/060330telecom.pdf#search='randolph%20May%20testimony; Stephen Moore, *Deregulate Telecommunications*, NAT'L REV. ONLINE, Feb. 25, 2005, http://www.nationalreview.com/moore/moore_conda200502251219.asp.

103 *See, e.g.*, Mark Cooper, Testimony Before the House Energy and Commerce Committee: The Merger Tsunami Is Drowning Competition in the Communications Marketplace (Mar. 2, 2005), *available at* http://www.consumersunion.org/pub/0302%20cooper%20house%20merger%20testimony.pdf.

competitive and substitution among alternative communications options, while considerable, is not complete. VoIP does not yet offer emergency service comparable to landline 911 service; wireless quality is still more variable than conventional wireline quality; and cable service can be disrupted by local power outages in a way that the circuit-switched local phone service cannot be. On the other hand, to believe that conventional local carriers possess significant market power one must provide a good reason to discount the evidence that local exchange carriers are losing traffic, customers, and revenues to competing technologies.

This Part will present a more moderate argument: that the data show a market structure that is sufficiently competitive to undermine the monopoly rationale for the current regulation of local telephone service. The time is therefore ripe—indeed, the data suggest overripe—to rethink the necessity, scope, and approach to telecommunications regulation in the United States. To make this argument it is not necessary that the telecommunications market be so competitive that it will perform according to some idealized, textbook model of perfect competition. Instead, the relevant question is whether continued, ex ante regulation will improve the functioning of the market compared to what would result under market-based competition. For the most part, the evidence shows that the answer is no. First, economic regulation of this imperfectly competitive market is likely to have significant, unintended costs for competition and for consumers. Second, no empirical evidence or general economic principles support the conclusion that the competitive imperfections will cause the market to perform so poorly for consumers that monopoly regulation is warranted or likely to improve consumer welfare.

### A. *Costs and Benefits of Regulation*

Part I of this Article discussed how the rationale for the most important aspects of telecommunications regulation in the United States is tied to the historic monopoly structure of the industry. This Section examines the costs of that regulation and discusses why the comparative costs and benefits of regulating an industry change as the industry moves from monopoly toward competition. It argues that the benefits of regulation diminish as markets become competitive, while the costs of regulation remain and even increase as that transition occurs. Regulatory costs that might result in a net benefit in the presence of monopoly become less likely to do so as a market moves away from a single-firm structure.

Regulators have long recognized the difficulties of price regulation.[104] A threshold problem with determining "reasonable" rates for a service is that the information necessary for the relevant calculations is in the hands of the very company being regulated. So called "moral hazard" problems thus arise because a firm can affect a regulatory agency's determination of allowable rates by manipulating underlying accounting data.[105] But even in cases where regulators can resolve such information asymmetries and obtain accurate cost data, rate regulation raises several perplexing problems. First, regulators must divide a firm's costs into three categories: costs that may be passed on to consumers and on which the firm is allowed to earn a return; costs that may be passed through to consumers but on which regulators do not allow a return; and costs that the firm may not pass through at all to consumers.[106] Typically regulators allow firms a return on investment in capital and assets used to provide service to customers.[107] Firms may pass through, but not earn a return on, expenditures such as tax payments, wages, capital depreciation, and energy costs. Firms generally may not pass through expenditures or investment costs that regulators deem "imprudent."[108]

The last category of costs can be particularly contentious and involve protracted regulatory proceedings with major impacts even on a firm's recovery of documented capital expenditures. For example, the California Public Utilities Commission disallowed over $4 billion of the roughly $5.5 billion that Pacific Gas & Electric spent on the Diablo Canyon Nuclear Power Plant because it believed that "unreasonable management was to blame for a large part of this cost overrun."[109] While such decisions often protect consumers from bearing costs that the monopoly could never pass through if it faced competition, they also involve a delicate balance in which hindsight risks punishing a firm for decisions that were honest, efficient, and well-reasoned when made but that later turned out badly.

Putting aside the difficulties of assessing a firm's expenditures for purposes of determining a "rate base" on which to calculate a firm's allowable return, regulators face the challenge of how to value that rate base. For many

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104 Policy and Rules Concerning Rates for Dominant Carriers, 3 F.C.C.R. 3195, 3204-06 (May 23, 1988) (explaining informational and incentive problems with monopoly price regulation); *see also* BENJAMIN ET AL., *supra* note 7, at 425-29.

105 *See, e.g.*, HAL R. VARIAN, INTERMEDIATE MICROECONOMICS 588 (2d ed.1990).

106 For a clear explanation of rate-of-return regulation and its mechanics, see Mark A. Jamison, *Rate of Return Regulation*, *in* ENCYCLOPEDIA OF ENERGY ENGINEERING AND TECHNOLOGY (forthcoming), *available at* http://www.purc.ufl.edu/primary/documents/JamisonRateofReturnRegulation.pdf (last visited Nov. 15, 2006).

107 47 U.S.C. § 213 (2000); *see also* AT&T et al. Charges for Interstate Telephone Service, 64 F.C.C.2d 1, 46-47 (Mar. 1, 1977) (discussing which investments customers should be required to pay for through their rates).

108 *See* Policy and Rules Concerning Rates for Dominant Carriers, 4 F.C.C.R. 2873, 2884 (Apr. 17, 1989) (describing an investigation into Bell System's accounting of costs).

109 STATE OF CALIFORNIA, PUBLIC UTILITIES COMMISSION ANNUAL REPORT 1986-1987, 13 (1987).

years the only approach the Supreme Court found constitutionally valid was to allow a return on the "fair value" of a utility's assets.[110] The principle of the fair value measure is easy to state but difficult to implement. The idea is to allow return on those investments that have resulted in productive facilities and to disallow return on investment that has failed to produce beneficial assets for the firm. Another way to think of this is that the fair value approach asks what the current market value of the utility would be were it hypothetically to be sold. The price would be determined solely by the present value of the productive assets for which a rational buyer would pay. It is those assets on which the "fair value" approach seeks to base a return.

Unfortunately, arriving at that present-value figure is notoriously difficult—a "laborious and baffling task" in the words of the Supreme Court.[111] The other principal method of valuing the rate base has been to look at the firm's original financial investment and to allow a return so long as those investments were prudent at the time they were made. While the courts have approved such an method,[112] the approach does not weed out bad investments with no current economic value and does not adjust the current rate of return for factors like inflation and changing replacement costs of capital that reflect the utility's current risks and financial opportunities.

The 1996 Act gave rise to yet a different model of ratemaking for the purpose of determining the prices competitors should pay for access to the incumbents' unbundled network elements ("UNEs"). In implementing the Act's prescription that rates for UNEs be based on cost, the FCC determined that costs should not be the embedded or historical costs of the network, but instead the total, forward-looking, incremental costs of providing each element (the "TELRIC" method; the acronym stands for total, element, long-run, incremental costs).[113] Properly implemented, this approach requires calculating the forward-looking economic value of each part ("element") of a network, which might appear to resemble the fair-value approach with all of its attendant difficulties. The FCC, however, developed models of a hypothetical, most-efficient network to generate rates for UNEs instead of using cost data based on networks actually in place.[114] State commissions followed the FCC's lead and similarly applied a hypothetical, "most-efficient technology" standard to assessment of network costs.[115]

Unfortunately, reliance on models instead of actual networks did not ease the rate-making task, and the FCC ultimately found TELRIC troublesome in

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110 Smyth v. Ames, 169 U.S. 466, 457 (1898).

111 Missouri *ex rel.* Sw. Bell Tel. Co. v. Pub. Serv. Comm'n, 262 U.S. 276, 292 (1923).

112 Duquesne Light Co. v. Barasch, 488 U.S. 299, 309 (1989); Fed. Power Comm'n v. Natural Gas Pipeline Co., 315 U.S. 575, 605-06 (1942).

113 47 C.F.R. § 51.505 (2005).

114 Iowa Utils. Bd. v. FCC, 219 F.3d 744, 749-50 (8th Cir. 2000).

115 Review of the Commission's Rules, *supra* note 98, at 18,948-49.

three crucial respects. First, the Commission found that "the TELRIC rules have proven to take a great deal of time and effort to implement . . . the drain on resources for state Commissions and interested parties can be tremendous."[116] The FCC further observed that "these complicated and time-consuming proceedings may work to divert scarce resources from carriers that otherwise would use those resources to compete in local markets."[117] Second, the Commission found the costly proceedings to produce inconsistent results: "for any given carrier there may be significant differences in rates from state to state, and even from proceeding to proceeding within a state. We are concerned that such variable results may not reflect genuine cost differences but instead may be the product of the complexity of the issues, the very general nature of our rules, and uncertainty about how to apply those rules."[118] Finally, the FCC found that "[t]he lack of predictability in UNE rates is difficult to reconcile with our desire that UNE prices send correct economic signals."[119]

As the Commission's observation about incorrect economic signals indicates, the rate-setting function of monopoly regulation is costly not only in its administrative burdens, but in its effects on economic incentives of market actors. Consider first the effects on regulated firms. Firms subject to rate-of-return regulation (also called "cost-of-service" regulation) may have distorted incentives when it comes to deploying efficient, low-cost production technology.[120] If regulated firms receive a guaranteed return calculated as a percentage above costs, their absolute profits will be higher as their costs rise. Incentive-based rate programs such as price cap regulation improve the incentive properties of traditional rate-of-return regulation by allowing firms to earn extra profits by cutting costs. But even price caps provide weaker incentives than the unregulated market. As the Supreme Court has observed, "[t]he price-cap scheme starts with rate generated by the conventional cost-of-service formula."[121] Moreover, regulators typically adjust price caps downward over time to reflect industry-wide productivity increases and to share those productivity gains with consumers.[122] Because the carriers' increased efficiency in providing service contributes to such productivity gains, carriers ultimately pay some price for increasing their operating efficiency. Price cap mechanisms therefore provide less incentive to cut costs than does competition, in which failure to be efficient means not just losing some profits, but losing customers altogether to rivals.

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116 *Id.*

117 *Id.* at 18,949.

118 *Id.*

119 *Id.*

120 *See, e.g.*, Harvey Averch & Leland L. Johnson, *Behavior of the Firm Under Regulatory Constraint*, 52 AM. ECON. REV. 1052, 1053 (1962); *see also* Jamison, *supra* note 106, at 6.

121 Verizon v. FCC, 535 U.S. 467, 487 (2002).

122 *See* BENJAMIN ET AL., *supra* note 7, at 427 (noting that the government has an incentive to lower price caps over time).

It is important to note that the harms to efficiency and innovation discussed above result even if regulators accurately identify the costs of the regulated firm and provide that firm with a "fair" rate of return. Additional and potentially more costly problems arise if regulators do not accurately measure costs and set rates to provide the targeted level of return. The informational and administrative difficulties of rate regulation suggest that accuracy is unlikely to be the norm, as the FCC has found to its chagrin in the case of TELRIC pricing for UNEs. Rate setting mistakes can be costly to consumers and the regulated firm alike. If regulators set rates too high, then price regulation is not protecting consumers very well yet is still incurring administrative costs and distorting incentives. Given that the underlying logic of regulation is generally premised on the natural monopoly structure of an industry and the potential cost advantages (or economic inevitability) of a single provider over competition,[123] rates that regulators set too high raise the question of whether consumers might not in fact be better off with competition which, though perhaps less efficient from a cost standpoint, does a better job of disciplining pricing behavior. If, on the other hand, regulators set prices too low, then the regulated firm may have trouble attracting the financial investment necessary to maintain, develop, and deploy capital in the way that best benefits consumers in the long run.[124]

Consider next the potential effects of regulated rates on potential entrants. The effects of incorrectly regulated rates become particularly acute when a market is undergoing the transition to competition, especially in industries characterized by high fixed costs of production. Long-run prices for any good or service must be high enough for firms to recover their production costs; when firms must make large, fixed investments in infrastructure to provide service, then prices must be above marginal cost if firms are to recover their initial capital outlays. No firm goes into business to lose money, although that is exactly what would happen if a high-fixed-cost industry had its prices driven down to the textbook competitive ideal of prices equal to marginal (or average variable) costs.[125] Perfect competition is therefore the wrong standard for market performance in high-fixed-cost industries; some margin above incremental, variable cost is necessary.[126] If regulators set prices so low that they do not provide an attractive rate of return on total costs, unregulated competitive entrants will not find the market attractive to enter. The goal of price regulation is, however, to keep prices low for consumers. If regulators choose competitive pricing standards inappropriate to the economics of the industry and, in their efforts to restrain the dominant firm's perceived market

123 *See, e.g.*, VARIAN, *supra* note 105, at 407-09.

124 Viscusi et al., *supra* note 106, at 379.

125 *See, e.g.*, VARIAN, *supra* note 105, at 407.

126 Economists sometimes refer to this idea as "workable" competition to distinguish it from the textbook ideal of "perfect" competition. *See* J.M. Clark, *Toward a Concept of Workable Competition*, 30 AM. ECON. REV. 241 (1940).

power force prices too close to marginal costs, regulators risk deterring the competitive entry that could obviate the need for regulation in the first place.

In a market moving toward competition, then, regulators walk a very fine line: Regulated prices that are too high can act as focal points around which market prices cluster. That is, even if the regulated firm has downward pricing flexibility, prices may be higher than in an unregulated setting if the incumbent must file tariffs that give advance notice of its intention to lower prices. There is empirical evidence that AT&T acted as a price leader in the long-distance telephony market when it was required to file tariffs as a dominant firm. The principal competitors, MCI and Sprint, knew in advance what AT&T's prices would be and had incentive to follow just under the "umbrella" of AT&T's prices rather than aggressively cutting prices themselves.[127] Regulated prices that are too high thus accomplish nothing, except possibly to raise consumer prices, in a market that would otherwise be naturally moving toward competition.

Regulated prices that are too low also do harm. Entrants move into markets where they expect to earn a profit. Regulating the incumbent's rates to a level below that which provides the return competitors need to attract investment and profitably enter the market will deter competition and impede the benefits it would provide to consumers. Regulators thus face a tall order in markets in which competition is emerging: Set rates at exactly the level that will allow an efficient firm to attract the investment necessary to compete in the marketplace. Rates above that level will make consumers worse off than the unregulated market, rates below that level will deter competition that would naturally lower prices and obviate the need for administratively costly regulation. Given the difficulties that regulators inevitably face in setting rates with such precision (recall the FCC's remarks about TELRIC, *supra*) one must be skeptical about the wisdom of importing rate regulation schemes from a monopoly setting into an emerging competitive environment.

The concerns raised above apply equally to regulation of wholesale or UNE rates, and equally where regulation addresses non-price dimensions of service. Consider the case of UNEs. One might argue that regulating wholesale rates is less risky than regulating retail rates because if UNE prices are too high, new entrants simply will not buy UNEs; if UNE rates are too low, entrants will get an extra competitive boost instead of being deterred from competing. That argument is incorrect, however. If UNE rates are too high then it is hard to see what policy goals they could serve to be worth the administrative burden. A mechanism would be in place for access that rational entrants would not purchase. The problem with UNE rates that are too low is more severe. As the FCC itself has acknowledged, rates that do not fully compensate incumbents for the incremental costs of providing UNEs

127 Paul W. MacAvoy, *Testing for Competitiveness of Markets for Long Distance Telephone Services: Competition Finally?*, 13 REV. INDUS. ORG. 295, 298, 305 (1998).

undermine investment incentives and thwart the development of competing networks.[128] Such low rates deter the incumbent from investing in its network and deter entrants from building their own networks by providing them with subsidized use of the incumbent's network. The result is less investment by incumbents and entrants alike, less innovation, and less price competition over time for consumers.

Line-of-business restrictions are another form of regulation that imposes costs on society. Whether such limits are strict, like the restrictions governing the AT&T divestiture, or whether they govern the structure and terms of entry into adjacent markets more modestly, as under the 1996 Act, they have the effect of limiting competition and hence the economic performance of the market into which regulators control entry. One study, for example, estimates that the AT&T divestiture's information-services restriction, in delaying the RBOCs from introducing innovative voice-messaging services, cost society over $1 billion per-year in consumer welfare.[129] Others have recognized more generally that even where some government regulation is necessary because unmonitored entry into markets could allow some firms to cause consumer harm, restrictions entail a tradeoff because they also reduce competition and potential innovation.[130]

In the case of the AT&T divestiture, one can reasonably debate the wisdom of the line-of-business restrictions. While the necessity and duration of the restrictions can be questioned, there is a good case that, at least initially, they protected the affected markets from potential anticompetitive strategies by the RBOCs. After divestiture the RBOCs still had substantial control over access to customers by virtue of their local exchange monopolies, which they could potentially have exploited to gain market power in complementary markets.[131] On the other hand, the players in those complementary markets were strong and experienced—firms like AT&T in long distance telephony and IBM in information services. Whatever the initial case for limits on lines of business, the claim that such regulation yields net benefits weakens as the bottleneck monopoly diminishes with competition. For then society is left with the costs of reduced competition and innovation without the compensating benefit of reduced anticompetitive harm.

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128 18 F.C.C.R. at 18,947.

129 Jerry A. Hausman, *Valuing the Effect of Regulation on New Services in Telecommunications*, 1997 BROOKINGS PAPERS IN ECON. ACTIVITY: MICROECONOMICS 1, 14-15 (1997).

130 Scott D. Anthony et al., *The Policymaker's Dilemma: the Impact of Government Intervention on Innovation in the Telecommunications Industry* (Innosight, Working Paper No. 02-075, 2002), *available at* http://www.innosight.com/documents/PolicymakersDilemma.pdf.

131 Such monopoly power over local exchanges was the reason behind the line of business restrictions in the MFJ. United States v. AT&T, 552 F. Supp. 131, 141 (D.D.C. 1982), *aff'd sub nom.* Maryland v. United States, 460 U.S. 1001 (1983).

The above discussion highlights only some examples of the costs of regulation in order to show that regulation cannot casually be assumed to be costless or effective.[132] The discussion also allows one to see that the benefits of regulation depend in important ways on the existence of an underlying monopoly. Rates that are set too low in a monopoly do not deter competitors—competitors do not exist either because they did not arise in a previously unregulated environment or because regulators determined the industry to be a natural monopoly in which multiple firms would be inefficient. Regulated rates that are too high in a monopoly setting may still be better than what the monopolist would charge unconstrained. Monopoly thus allows regulation to be imprecise and still create consumer benefits. Under competition, even (or perhaps especially) emerging competition, regulators have no such margin for error. The errors and administrative costs that may still be compatible with net social gains under regulated monopoly become less so as competition develops. Rather than restraining the even greater harms of monopoly, the regulations impede the even greater benefits of competition. Regulators must therefore be extremely wary of "the rather dangerous combination of competition and regulation"[133] that comes from allowing regulatory programs designed for monopoly to carry over into a market making the transition to competition.

### B. *Oligopoly and Imperfect Competition in Telecommunications*

To say that the telecommunications market has transformed from its former monopoly structure is not to say that the industry will behave in a "perfectly competitive" fashion or that the rival communications offerings are perfect substitutes for conventional telephone service. Competition need not be perfect for deregulation to be socially beneficial. As will be discussed in this Section, in some cases even concentrated markets ("oligopolies") may perform well and, more to the point, may perform better unregulated than regulated. This Section will discuss three reasons why telecommunications markets in particular may warrant deregulation even as competition is developing and is still at oligopoly levels. It will then examine the research on the behavior of firms in concentrated markets to see what economic theory and empirical evidence show about the performance of oligopolies under conditions that exist in network industries like telecommunications. The analysis reveals that, although oligopolies will rarely perform like textbook competitive markets, they can perform significantly better for consumers than monopolies and can be harmfully distorted by regulation designed for a monopoly setting.

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132 For example, another category of regulatory costs may arise from manipulation of the regulatory process itself to benefit powerful constituencies. *See, e.g.*, Sam Peltzman et al., *The Economic Theory of Regulation after a Decade of Deregulation*, 1989 BROOKINGS PAPERS IN ECON. ACTIVITY: MICROECONOMICS 1 (1989).

133 ROBERT W. CRANDALL, AFTER THE BREAKUP: U.S. TELECOMMUNICATIONS IN A MORE COMPETITIVE ERA 42 (1991).

The first reason why the addition of even one or two competitors can change the dynamics of telecommunications markets to the benefit of consumers has to do with the cost structure of the industry. Telecommunications networks have very high, fixed costs, often specific to particular services and locations. The result is that competitive facilities are very unlikely to exit the market—once in place they will remain to be used in competition with the incumbent carriers. If one operator fails, the assets will be available for another to purchase and deploy, as the exiting firm will not simply tear up cable, leave spectrum rights unexercised, or throw away switches. As a result, while it may be possible for an incumbent firm to drive a new operator from the market, it is much more difficult for the incumbent to drive competitive assets from the market. Competition is thus likely to be much more durable in a network industry with sunk costs.

Second, even imperfect substitutes in a differentiated-product market like telecommunications can be very powerful drivers of competitive behavior where fixed costs are high compared to the variable costs of service. When a telephone carrier loses a customer, it loses revenue but does not save much cost from not serving that customer. The result is that a lost customer is particularly harmful to a network operator because the operator loses not just the profit it would earn from the customer, but that customer's contribution to fixed costs the operator must continue to bear. The lack of a downward adjustment in cost to offset revenue loss is particularly acute in telecommunications because the fixed costs of building and maintaining a network are very high while the marginal costs of serving any customer are very low. The consequence is that one network's products (say wireless) need not be viewed as substitutes by the majority of another network's (say an ILEC's) customers for the latter to feel acute competitive pressure to retain customers.[134]

Third, one cannot simply assume that because a market is concentrated it will perform badly. As Professor Alfred Kahn has noted, "concentrated or oligopolistic markets . . . could show widely diverging kinds of performance."[135] It is true that competition among only two or three competing firms generally does not completely eliminate market power or provide an optimal menu of consumer choices. The telecommunications market today is not wholly risk-free for consumers. Firms in concentrated markets may have

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134 This argument does not imply that network markets with high fixed costs will become highly competitive (in the sense of price being close to marginal cost) as soon as there is some competitive entry. In high-fixed-cost markets the textbook competitive equilibrium is unlikely to be sustainable because firms would lose money by failing to recover fixed costs. Long-run prices will thus likely reflect average total costs, not the textbook ideal of marginal costs. The argument above does imply, however, that even limited competition will reduce the ability of the incumbent firm to exercise market power to achieve abnormally high profit margins above average total costs.

135 Alfred E. Kahn, *Economic Justification for TELUS' Two-Facilities Bright-Line Forbearance Test*, Canadian Radio-Television and Telecommunications Commission Public Notice 2005-2 (June 22, 2005) app. 2 to Comments of TELUS Communications Inc. at 20.

some degree of power over price, quality, and output. But claims that a concentrated telecommunications market is one in which consumers are *likely* to be made worse off if regulation is reduced, or are likely to suffer harm that regulation can remedy, should be met with skepticism. There are circumstances and dimensions in which concentrated markets perform badly and those in which they perform well. But, as will be discussed below, both economic theory and empirical evidence suggest that, on dimensions of both pricing and innovation, today's telecommunications firms perform more like competitors than like monopolists whose market power requires ex ante restraint. The analysis further shows that regulation is unlikely to improve on, and may impede, the benefits of that competition.

1. Basic Oligopoly Models

"Oligopolies" are markets that contain a small number of firms. Such concentrated markets are usually "imperfectly" competitive: Oligopoly prices are generally higher than prices that result from perfect competition but lower than prices that result under monopoly.[136] Firms in oligopolies thus often earn profits higher than necessary to keep competitive firms in the industry and are not constrained, as firms facing perfect competition are, to accept passively the prices dictated to them by the marketplace. The key feature of oligopolies, and the one that generates higher profits, is that there are few enough firms that each firm makes price and output decisions knowing its individual decisions will affect the market and cause responses by other firms. Anticipation of those competitive responses may cause a firm to rethink what at first looks like a profit-enhancing move.

Consider a simple example in which two firms compete ("duopoly") to sell pizzas and each charges $10 per pizza. Suppose one firm determines it could attract customers from its rival by cutting price to $8. That firm can often anticipate that its rival will respond with a matching price cut. At the end of the day, both firms will again share the market, but at $8 of revenue per pizza instead of $10. Perhaps the lower price will induce people to increase their consumption of pizzas enough to raise overall profits for each firm even at the lower price. But absent such a scenario, the prospective price cutter will realize that its rival's reaction will quickly eliminate the short-run gains and lead to longer-run reduction in profits for both firms. The resulting equilibrium can be one in which firms share profits rather than compete to erode them.

The greater the number of competitors in the market, the less likely the strategic interactions described above. It is harder for large numbers of firms to

136 The basic model of oligopoly can be found in price theory or industrial organization textbooks. *See generally* DENNIS W. CARLTON & JEFFREY M. PERLOFF, MODERN INDUSTRIAL ORGANIZATION 157-99 (4th ed. 2005); JEAN TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 204-419 (2003).

keep track of each other's activities; it is less likely that any individual firm's actions could fundamentally change the market and more likely that some firm at any given time will be cutting price. Under such vigorous competition, firms cut prices because if they do not, rivals will, and the firm will lose its market share; in the simple oligopoly story firms don't cut prices because, if they *do*, rivals will and all firms will earn lower profits.

Oligopoly is not, however, a sufficient condition for regulation. This point is generally recognized in antitrust law, in which concentrated markets raise only a presumption of poor performance,[137] a presumption that analysis of specific circumstances often rebuts even at very high levels of market concentration (e.g., three firms).[138] The reasons for often finding market concentration harmless in antitrust apply at least as strongly in the context of industry-specific policy like telecommunications regulation. First, oligopoly does not always lead to poor levels of price and output for consumers. Second, regulated oligopoly may be worse for consumers than unregulated oligopoly. To see how different the results under oligopoly can be depending on various assumptions, consider the contrast between the best-known basic models of concentrated markets, the "Cournot model" and the "Bertrand model," each named for the 19th century economist who developed it.

In the Cournot model, each firm in the market independently calculates its own profit-maximizing output level, knowing that its choice will combine with the output levels of its rivals to determine the market price and what each firm's profits will be.[139] The market reaches equilibrium when, given every other firm's output choice, no firm would find it profitable either to raise or lower its own output level.[140] The equilibrium price in the Cournot model turns out to be lower than the monopoly price, but higher than the marginal-cost prices that would exist in a perfectly competitive market. The price that results from Cournot competition moves closer to marginal costs as the number of firms in the market increases.[141]

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137 U.S. Dep't of Justice and the FTC, Horizontal Merger Guidelines § 1.5 (1997), *available at* http://www.usdoj.gov/atr/public/guidelines/horiz_book/hmg1.html.

138 John Kwoka, *Some Thoughts on Concentration, Market Shares, and Merger Enforcement Policy*, presented at the FTC/DOJ Workshop on Merger Enforcement, Washington, D.C., Feb. 17, 2004, *available at* http://www. ftc.gov/bc/mergerenforce/presentations/040217kwoka.pdf.

139 *See* AGUSTIN A. COURNOT, RESEARCHES INTO THE MATHEMATICAL PRINCIPLES OF THE THEORY OF WEALTH (Nathaniel T. Bacon trans., 1927) (1838). In the Cournot oligopoly model, firms act independently to maximize their individual profits by strategically choosing production levels, but each firm is aware that its individual profits also depend on its competitors' choices. Each firm in the market makes a conjecture (called a "Cournot conjecture") about the other firms' likely production levels, and from that conjecture determines how much residual market demand will be left for the individual firm to capture.

140 In modern terminology, the Cournot equilibrium is a type of Nash equilibrium. *See generally* CARLTON & PERLOFF, *supra* note 136, at 162.

141 *See id.* at 165; *see also id.* at 166, Table 6.2.

In the Bertrand model of oligopoly, firms act independently to maximize individual profit by strategically choosing their prices (rather than output levels, as in the Cournot model) but are aware their individual profits will depend also on the prices their rivals' will choose to set.[142] Because the low-price firm captures the entire market share, Bertrand firms drop their prices as low as possible in anticipation of their rivals' price cuts.[143] As a result, in equilibrium, Bertrand firms make zero economic profits (i.e., profits that cover costs plus the money a firm could have earned by pursuing the next best alternative business opportunity)—the minimum profit level at which a firm might be willing to stay in business.[144] This is called the Bertrand paradox—two firms are enough for perfect competition.[145]

The basic Bertrand and Cournot models incorporate a number of unrealistic assumptions about consumer demand, firm costs, product substitutability, and competitive entry. But a comparison of those models is useful because it shows how differently oligopolies might perform depending on underlying assumptions, notably on whether firms compete based on price or output levels. More sophisticated models of oligopoly behavior build in more realistic assumptions about industry structure, firm costs and consumer demand, but still reveal a range of outcomes from oligopoly and show oligopoly to be better than monopoly, even if not near the efficiency of perfect competition.[146]

2. Empirical and Experimental Studies of Oligopoly

Generally, empirical evidence reflects the theoretical predictions that oligopoly performance will vary depending on underlying conditions. One study that examines price-cost margins in a range of U.S. manufacturing industries from 1958 to 1981 finds that outcomes in concentrated industries resemble Cournot outcomes, meaning performance is neither as poor as that of monopoly but not as good as perfect competition.[147] A more comprehensive survey of empirical research on concentrated markets finds similar results and

142 *Id.* at 166-67.

143 Firms in this model make conjectures (called "Bertrand conjectures") about what their rivals' prices will be and how those prices might respond to any action the individual firm takes. Because the basic Bertrand model assumes that consumers consider the goods produced by various firms to be perfectly substitutable, and assumes that each firm could produce enough of the good at issue for the entire market at constant marginal cost, the firm that sets the lowest price will receive the entire market share. *Id.* at 166-70.

144 *Id.* at 168.

145 TIROLE, *supra* note 136, at 210-11.

146 *See, e.g.*, Gregory J. Werden, *Economic Evidence on the Existence of Collusion: Reconciling Antitrust Law with Oligopoly Theory*, 71 ANTITRUST L.J. 719 (2004) (providing a useful "short course" on oligopoly).

147 *See* Ian Domowitz et al., *Oligopoly Supergames: Some Empirical Evidence on Prices and Margins*, 35 J. INDUS. ECON. 379 (1987).

demonstrates that performance can vary depending on underlying industry and consumer factors.[148]

Economic experiments also offer compelling evidence about oligopoly behavior.[149] Recent experimental studies find that under a wide variety of conditions oligopolistic competition yields prices and outputs that are better than monopoly but not as good as perfect competition, and that the performance of the market increases with the number of firms.[150] Importantly, these studies consistently show that as the number of firms in the market increases beyond two, market performance improves substantially for consumers.[151]

The experimental and empirical evidence provides some explanation for the data showing that, despite a presumption in the Horizontal Merger Guidelines that markets with five equal sized players are unhealthily concentrated, the DOJ and FTC in fact generally allow mergers that reduce the number of firms in a market from five to four and often from four to three.[152] The evidence that competition becomes notably more vigorous when there is even just a third firm in the market may explain why merger authorities often find concentration to three or four firms not to harm consumer welfare. The fact that merger authorities so find, backed up by the empirical and theoretical evidence that oligopoly markets may vary widely in their competitive performance, supports the general point that oligopoly cannot be presumed to be so anticompetitive as to warrant regulation.

3. Applications of Oligopoly Research to Telecommunications

The telecommunications industry has several specific features that affect oligopoly performance. Most importantly, telecommunications networks involve large, fixed costs and low marginal costs of adding new subscribers. These features have several implications. First, long-run prices in the market will be above marginal cost even under vigorous competition, because the textbook result of marginal-cost pricing under perfect competition would fail to compensate firms for their costs of building their networks. Thus, the presence

148 Timothy F. Bresnahan, *Empirical Studies of Industries with Market Power*, *in* 2 HANDBOOK OF INDUSTRIAL ORGANIZATION 1011 (Richard Schmalensee & Robert Willig eds., 1989).

149 For an explanation of experimental economics by the economist who received the Nobel prize for its development, see Vernon Smith, *Experimenal Methods in Economics*, http://www.ices-gmu.org/Article.php/370.html (last visited Nov. 5, 2006).

150 Jon Ketcham et al., *A Comparison of Posted-Offer and Double-Auction Pricing Institutions*, 51 REV. ECON. STUD. 595, 613 (1984); Jamie Brown Kruse et al., *Bertrand-Edgeworth Competition in Experimental Markets*, 62 ECONOMETRICA 343, 363 (1994); Charles R. Plott, *Industrial Organization Theory and Experimental Economics*, 20 J. ECON. LIT. 1485, 1516 (1982).

151 *Id.*; *see also* Steffen Huck et al., *Two Are Few and Four Are Many: Number Effects in Experimental Oligopolies*, 53 J. ECON. BEHAV. & ORG. 435, 435-36 (2004).

152 Kwoka, *supra* note 138.

of price-cost margins is not the indicator of market power in telecommunications that it might be in industries with different cost structures. Second, as mentioned, firms with high fixed costs and low marginal costs suffer greater economic harm from losing a customer than do other kinds of firms, because they cannot reduce their costs in proportion to their loss of revenue. Finally, telecommunications providers must make substantial capacity commitments in advance of selling service, which affects the firms' decisions about price and output. Under these circumstances, neither the basic Cournot nor Bertrand approach captures how telecommunications firms are likely to behave, although more sophisticated models provide some insight.

For example, professors David Kreps and Jose Scheinkman brought together elements from both the Cournot and Bertrand models to study a more realistic model of firm behavior.[153] Kreps and Scheinkman consider two firms that interact with each other over two stages. In the first stage, each firm makes a binding choice about its future production capacity; essentially a Cournot style output decision. In the second stage, each firm chooses price given its existing production capacity and makes Bertrand conjectures about how its rival will respond. The predicted results from the Kreps-Scheinkman model are the same as the basic Cournot model, with the equilibrium price above marginal cost but below the monopoly price.[154] This approach addresses the less intuitive Cournot assumption that firms compete in quantity rather than price but also addresses the less believable Bertrand outcome that firms in a concentrated industry make zero economic profit. Instead of being two different models about firms' conjectures and behavior, the Cournot and Bertrand approaches represent two different stages of a duopolist's competitive decision-making.

The Kreps-Scheinkman model has particular relevance to network industries like telecommunications. Decisions about network scope and capacity must to some degree precede the provision of service. When telecommunications companies dig up streets to lay bundles of cable, they make long-run decisions about how much capacity their networks are likely to need. When wireless companies bid for spectrum in the FCC's periodic auctions, they are effectively buying blocks of capacity. Neither the underground (or undersea) cable capacity nor the amount of radio spectrum a firm has can be easily changed in the short-run. Competition will at least for a period of time be affected by a capacity decision. If the capacity constraint proves binding, following a period of decline prices will rise until more capacity can be added, after which prices will again fall; a phenomenon known as "Edgeworth cycling" after the economist who first analyzed it.[155] If capacity

153 David Kreps & Jose A. Scheinkman, *Quantity Precommitment & Bertrand Competition Yield Cournot Outcomes*, 14 BELL J. ECON. 326 (1983).

154 TIROLE, *supra* note 136, at 216.

155 CARLTON & PERLOFF, *supra* note 136, at 170-72.

constraints are not binding and existing production capability can serve all market demand, then the upward part of the Edgeworth cycle may not occur.

Indeed, prices may collapse to marginal cost if capacity is sufficiently great as the telecommunications sector learned in the late 1990s. Firms in the 1990s made decisions about how much capacity to put into networks, particularly fiber optic networks designed to carry an expected increase in global voice and data traffic. Firms predicted, as the Kreps-Sheinkman approach might suggest, that their capacity would be used to a sufficient level to support profitable pricing among the handful of market competitors. But then two things happened: global traffic did not rise to predicted levels, and digital compression technology allowed a dramatic increase in the amount of data that a given amount of cable could carry. The result was enormous overcapacity and a price war among networks to sell idle capacity to telecommunications customers. Prices tumbled dramatically and in many places have continued to do so.[156] This example highlights how, in an oligopoly setting, the cost structure of an industry and the way it must invest in productive capacity can greatly affect the performance of a concentrated market.

Empirical studies of telecommunications oligopolies have been limited by the history of monopoly in the industry and by the fact that, even in the absence of monopoly, regulation has often constrained market structure and firms' behavior. That being said, the empirical evidence in telecommunications since the AT&T divestiture still offers useful insights into oligopoly performance in the industry.

Professor Paul MacAvoy examined the competitiveness of post-divestiture long-distance telephony by calculating the price-cost margins of AT&T, MCI, and Sprint.[157] Consistent with the theoretical and experimental predictions that a slight increase in the number of firms will increase competition, MacAvoy found that long-distance prices between 1987 and 1994 decreased by 50% as the market expanded from one to three suppliers.[158] But although prices fell, MacAvoy found that price-cost margins nonetheless persisted for some time.[159] Professor David Newbery found that consumers in

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156 *See, e.g.*, Andrew M. Odlyzko, *Internet Traffic Growth: Sources and Implications* (Univ. of Minn. Working Paper, 2003), *available at* http://www.dtc.umn.edu/~odlyzko/doc/itcom.internet.growth.pdf (discussing low internet transport prices in wake of cutthroat competition resulting from overinvestment in infrastructure); Jason Kowal, *Carrier's Pricing Projections: What is Happening to the Transcontinental Bandwidth Market, and at What Price?*, ITU TELECOM ASIA 04, Sept. 9, 2004, http://www.itudaily.com/new/home.asp?Articleid=4090903 (showing large drops in capacity prices between Europe and Asia and within Asia in 2004).

157 MACAVOY, *supra* note 2; MacAvoy, *supra* note 127; Simarn K. Kahai et al., *Is the "Dominant Firm" Dominant? An Empirical Analysis of AT&T's Market Power*, 39 J.L. & ECON. 499 (1996).

158 MACAVOY, *supra* note 2, at 77.

159 MacAvoy, *supra* note 127, at 299.

the U.K. experienced a similar drop in long-distance prices in the ten years after regulators opened the market.[160]

Studies of the wireless communications market tell a similar story. The FCC authorized cellular telephony in late 1983 by granting spectrum licenses to two firms in any geographic region.[161] A study by Phillip Parker and Lars-Henrik Roller found that the duopoly policy led to prices above marginal cost but that the duopoly pricing was much better than monopoly.[162] Empirical data show that as wireless telephony became more competitive with entry by new firms in the 1990s, prices fell and output expanded dramatically even while the market remained an oligopoly.[163]

Both the long-distance and wireless studies show telecommunications oligopolies to have performed much better than the monopolies for which regulation arose. While the industry did not perform like a textbook competitive market, the important question is not how oligopoly compares to perfect markets, but whether regulation improves oligopoly performance. On this point, even while MacAvoy is critical of the excess profits he finds to have persisted for some time under the long-distance oligopoly, he argues that the regulatory scheme itself, under which the FCC required the three main competitors to file tariffs, effectively facilitated collusive behavior among the firms.[164] Other studies of long-distance pricing support MacAvoy's argument that deregulation was more beneficial than continued regulation in that market.[165] In the case of the wireless industry, Parker and Roller similarly found that price regulation actually tended to increase prices charged by wireless providers.[166] A study of the British telecommunications industry also concluded that regulatory oversight had harmful effects on emerging competition and on market performance.[167]

The comparative performance benefits of oligopoly over monopoly for technological innovation also has empirical support. It is well established in the economic and competition policy literature that the link between market structure and innovation is much less predictable or systematic than the link

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160 DAVID M. NEWBERY, PRIVATIZATION, RESTRUCTURING, AND REGULATION OF NETWORK UTILITIES 324-25 (1999).

161 Philip M. Parker & Lars-Henrik Roller, *Collusive Conduct in Duopolies: Multimarket Contact and Cross-Ownership in the Mobile Telephone Industry*, 28 RAND J. ECON. 304 (1997).

162 Parker & Roller, *supra* note 161, at 305.

163 *See supra* Section II.A.

164 MacAvoy, *supra* note 127, at 298-99.

165 *See* CRANDALL, *supra* note 133, at 41-42, 72; Yu Hsing, *Impacts of Deregulation and Price Caps on Rate Converge between Washington DC and Eight Major Cities: A Pooled Data Model*, 7 INFO. ECON. & POL'Y 135, 136 (1995); Eli M. Noam, *Assessing the Impacts of Divestiture and Deregulation in Telecommunications*, 59 S. ECON. J. 438, 443-46 (1993); Clifford Winston, *Economic Deregulation: Days of Reckoning for Microeconomists*, 31 J. ECON. LIT. 1263, 1286 (1993).

166 *See* Parker & Roller, *supra* note 161, at 320.

167 *See* MARK ARMSTRONG ET AL., REGULATORY REFORM: ECONOMIC ANALYSIS & BRITISH EXPERIENCE (1994).

between market structure and prices.[168] But there is reasonably good evidence that neither monopoly nor perfect competition is particularly beneficial for investment in research and development or deployment of new technology.[169] Concentrated markets that lie between those polar cases provide a potentially valuable balance between competitive pressure to innovate and pressure to invest in R&D, and there is evidence that concentrated markets at least outperform monopoly when it comes to innovation.[170] In the particular case of telecommunications, new technology has been deployed much faster when there are two or three firms in the market than under monopoly.[171] Such new technologies are likely to have two effects: first, to provide better telecommunications services to consumers; and second, to feed the competitive forces that restrain prices as new products provide substitute consumer goods that erode the market power of incumbents.

The performance of concentrated markets thus has multiple dimensions and depends on several conditions, and telecommunications services possess characteristics which suggest that even modest rivalry can yield results that are quite competitive. A high ratio of fixed to marginal costs makes even partial substitutes potent motivators of competitive behavior. The fact that telecommunications networks are high capacity and have low marginal costs of adding consumers raise the probability that providers will compete through prices rather than restrain supply in an effort to keep prices high. The key point, however, is that regulation in such a setting is unlikely to improve pricing and may well interfere with competition. Advance tariff filing, for example, may help to stabilize high prices by removing the threat of surprise price cuts that benefit consumers and keep downward pressure on prices. Asymmetrically applied service standards and requirements may have similar effects. Moreover, especially in a market in which technology is advancing and investment in new technology is important, any regulation that got prices wrong by trying to push margins to the "perfectly" competitive level would risk deterring investment and competitive entry. In the light of increasing competition in telecommunications, the potential benefits of such regulation are in turn quite low.

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168 *See, e.g.*, Michael Katz & Howard A. Shelanski, *Mergers and Innovation*, 74 ANTITRUST L.J. (forthcoming 2006) (manuscript at 20-25), *available at* http://papers.ssrn.com/sol3/papers.cfm?-abstract_id=894346.

169 *Id.*

170 *Id.*; Philippe Aghion et al., *Competition and Innovation: An Inverted U Relationship* (Nat'l Bureau of Econ. Research, Working Paper No. 9269, 2002).

171 *See* Howard A. Shelanski, *Competition and Deployment of New Technology in U.S. Telecommunications*, 2000 U. CHI. LEGAL F. 85, 116 (2000).

### C. *Precedent and History Support a Deregulatory Shift*

History supports shifting sooner rather than later to a less rule-based telecommunications policy. First, there is precedent for deregulating markets whose structure is similar to that currently found in "local" telecommunications. Second, there is evidence that past delays in deregulation in a variety of industries have been costly to American consumers. This Section will discuss the relevant precedent and historical evidence.

The FCC and Congress have on several occasions made decisions about whether to impose or maintain regulation in concentrated markets. On three important occasions the Commission or Congress decided to forebear from regulating in circumstances generally less competitive than the local telecommunications market is today. These three occasions involved the provision for removal of cable price regulation in 1992, the deregulation of wireless communications in the mid 1990s, and the removal of dominant-firm regulation from AT&T in 1995.

In the case of cable television, Congress passed the Cable Television Consumer Protection and Competition Act of 1992 (1992 Cable Act) in response to public outcry about the rise in cable rates over the preceding years. The 1992 Cable Act granted local franchising bodies, in conjunction with the FCC, authority to regulate cable rates as long as the cable system at issue was not subject to "effective competition."[172] Of interest for current purposes is that the Act went on to define competition as "effective" if: (i) fewer than 30% of households in the franchise area subscribe to a cable system's cable service; or (ii) the franchise area is served by at least two unaffiliated subscription video providers each of which offers service to at least 50% of households in the area, *and* the smaller of the two providers has at least a 15% market share.[173] If applied to today's telecommunications market those standards would result in deregulation of most local service areas. Indeed, if one counts wireless telephony alone as being in the relevant market with conventional wireline local exchange service, all of local telecommunications would easily qualify facing "effective competition" under Congress' 1992 standard for cable. In fact, however, the telecommunications market is quickly becoming far more competitive than subscription video after factoring in the multiple wireless, landline, and cable-based solutions.

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172 47 U.S.C. § 543 (2000).

173 Implementation of Section of the Cable Television Consumer Protection and Competition Act of 1992 Rate Regulation, 8 F.C.C.R. 5631, ¶ 8 (1993). Since passage of the 1992 Cable Act, cable systems have met significant competition from the two, major direct broadcast satellite (DBS) providers operating in the United States. In June of 1993 cable operators held over 95% of the subscription video market in the United States. By June 2004 that market share had fallen to 72%, with the second and fourth largest providers being satellite companies. FCC, ANNUAL ASSESSMENT OF THE STATUS OF COMPETITION IN THE MARKET FOR THE DELIVERY OF VIDEO PROGRAMMING: ELEVENTH ANNUAL REPORT ¶¶ 4-6 (2005), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-05-13A1.pdf.

Wireless communications provide the second relevant precedent for a deregulatory move in conventional, wireline telecommunications. In 1984, the FCC defined geographic markets for cellular telephony and licensed two carriers in each market. Although the FCC did not impose regulation on these cellular duopolies, some state regulators did regulate cellular prices. In 1993, when Congress authorized the auction of radio spectrum that would enable "Personal Communications Service" (PCS) operators to enter the market in competition with incumbent cellular carriers, it simultaneously greatly reduced the ability of states to regulate the rates or operations of wireless carriers.[174] At the time Congress preempted such wireless regulation, the market was still a duopoly of the original cellular licensees. It is moreover important that the newly entering PCS carriers not only had to incur the fixed costs of building their own networks to compete with the already-established cellular carriers and overcome a sizable marketing and brand-recognition deficit, but also had to pay sizable sums for spectrum that the cellular licensees had received for free.

Congress nonetheless opted for deregulation in the wireless marketplace. In the wake of that decision the new entrants not only built their own networks, but deployed state-of-the-art technology with which the incumbents eventually had to catch up. As already mentioned, the real consumer price of wireless subscription dropped 34% from 1997 to 2002.[175] If one considers only wireline providers, the local telecommunications market is less consistent in its structure than the wireless market. But even at its most concentrated the local market is fast approaching and surpassing the duopoly structure in place when Congress deregulated wireless.[176]

The final example of precedent for deregulation in the face of emerging competition is long-distance telephone service. Even after divestiture, AT&T faced regulation that did not apply to its emerging competitors. The FCC classified AT&T's competitors as "non-dominant" carriers that had to file tariffs but whose rates were presumptively valid and could take effect within a day of filing. AT&T, on the other hand, was classified as dominant and had to file tariffs as much as 90 days in advance of the rate's effective date. The FCC in 1995 finally reclassified AT&T as non-dominant, at which time AT&T still had over 50% market share of the long distance market.[177] The market was at that point essentially deregulated, despite having only three major players, one of whom was substantially larger than the others.

Not only is there precedent from within U.S. telecommunications for deregulating local telecommunications as competition evolves, but there is foreign precedent as well. Telecommunications in the European Union (EU) is

174 47 U.S.C. § 332 (2000).

175 Tenth CMRS Report, *supra* note 1, at ¶ 157.

176 *See* Sections II.B and II.C, *supra*.

177 Motion of AT&T to be Reclassified as a Non Dominant Carrier, 11 F.C.C.R. 3271 (1995).

both a national and EU-wide matter. Individual member states set their own policies, but they do so pursuant to a "Framework Directive" of the European Parliament.[178] The Framework Directive expressly recognizes that ex ante rules to safeguard against monopoly need to adapt to changing market conditions.[179] Indeed, the Framework Directive allows such ex ante regulation of telecommunications carriers only where there is a firm with "significant market power" and where general competition law would be ineffective.[180] France recently put the Framework Directive into practice in deregulating the retail rates of France Telecom, the country's incumbent telecommunications carrier.[181] The French telecommunications authority, ARCEP, stated that changing market conditions as well as the access rules put in place pursuant to the Framework Directive had led to the development of significant broadband competition.[182] ARCEP found the pressure from broadband competition and resale sufficient to warrant phased deregulation of France Telecom's retail business.[183] Significantly, ARCEP ordered such deregulation on the strength of evidence of competitive growth, not on the existence of already-mature and substantial competition. ARCEP relied partly on the rapid growth of voice-over-Internet competition in the year preceding the decision, even while noting that such competition only encompassed 7% of telephone traffic in the relevant market.[184] The French regulatory authority similarly recognized drawbacks and limits to wholesale competition, but nonetheless found it sufficiently strong to support retail deregulation in the evolving French telecommunications market.[185]

In addition to the above examples from the telecommunications sector, there is empirical evidence from a number of other industries in the United States showing benefits from deregulation and, moreover, suggesting that delays in deregulating are costly to competition and consumers. In a survey of the results of deregulation in the transportation, communications, financial services, and energy sectors, Clifford Winston found that deregulation produced substantial consumer benefits.[186] Winston's objective was to examine

178 Council Directive 2002/21, 2002 O.J. (L 108) 33 (EC), *available at* http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/l_108/l_10820020424en00330050.pdf.

179 *Id.* ¶ 25.

180 *Id.* ¶ 25. The Framework Directive elsewhere defines "significant market power" as "the power to behave to an appreciable extent independently of competitors, customers, and ultimately consumers." *Id.* at art. 14, ¶ 2.

181 Authorité de Régulation des Communications Électroniques des Postes, ARCEP, Analyse des Marchés, Projet de décision portant modification de la décision no. 05-0571 de 27 Septembre 2005 d'analyse des marchés de la téléphonie fixe (July 25, 2006) [hereinafter ARCEP Decision], *available at* http://www.art-telecom.fr/fileadmin/uploads/tx_gspublication/projdec-06-0840-250706.pdf.

182 *Id.* at 8.

183 *Id.*

184 *Id.*

185 *Id.* at 9.

186 Clifford Winston, *Economic Deregulation: Days of Reckoning for Microeconomists*, 31 J. ECON. LIT. 1263, 1286 (1993)

whether economists' predictions about the effects of deregulation were matched by actual effects.[187] He found that economists did a good job of predicting the effect of deregulation on prices but that economists systematically underestimated the non-price benefits of deregulation such as service quality and innovation.[188] Despite some variation in the deregulatory benefits across the sectors he studies, Winston concludes that the evidence strongly supports realization of the predicted benefits of deregulation in industries in transition to competition.

A recent study by Professors Charles Fine and John de Figueiredo examines deregulation of railroads, natural gas, banking, and airlines (as well as mobile telephony). The authors find the evidence across industries to show that once competition develops in a regulated industry, deregulation that is too slow and incremental only harms consumers and distorts economic incentives.[189]

Each industry in Fine and de Figueiredo's study experienced some disruption that made the old monopoly regulation problematic and made competition viable.[190] The authors examine the costs of continued regulation as new competition emerged and the competitive consequences of the form and speed of deregulation that regulators chose in each case.[191] The lesson the study draws is that history counsels rapid and substantial deregulation of the U.S. telecommunications industry.[192] The railroad freight, natural gas, banking, and airline industries all experienced successful periods of regulation under various rationales of fair pricing and universal access, natural monopoly, and consumer safety. Following that period of successful regulation, each of those industries confronted a significant change that regulators had not unforeseen and that existing regulation could not take into account.[193] In the 1950s, railroads faced new competition from trucking and the newly developed highway system.[194] In the 1970s, the natural gas industry faced huge demand shocks in response to OPEC's 1973 oil embargo.[195] Unusually high inflation in the 1970s saw traditional banks losing customers to the new Money Market Mutual Funds.[196]

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187 *Id.*

188 *Id.* at 1272, 1276-77.

189 Charles H. Fine & John M. de Figueiredo, *Can We Avoid Repeating the Mistakes of the Past in Telecommunications Regulatory Reform?* 5 (MIT Commc'ns Futures Program, Working Paper No. 2005-001, 2005).

190 *Id.* at 8-9.

191 *Id.* at 9-10.

192 *Id.* at 11.

193 *Id.* at 4.

194 *Id.* at 11-12.

195 *Id.* at 15.

196 *Id.* at 18-19.

High fuel prices as well as new competition from charter airlines and jet service disrupted the airline industry in the 1970s.[197]

Regulators responded to these disruptions in a variety of ways. In the railroad industry, the Interstate Commerce Commission did not effectively respond to the changing conditions for 25 years. During that time, the rail infrastructure deteriorated, the trucking industry enjoyed higher freight profits because railroads were constrained, and a large number of railroads went bankrupt.[198] In the natural gas industry, incremental and incomplete deregulation over twenty years saw the persistent under-development of pipelines and reserves, whereas full economic deregulation brought in efficiency-enhancing restructuring of the distribution system and price competition and stabilization.[199] The piecemeal deregulation of the banking industry in the 1970s and 1980s created perverse incentives for savings and loan managers to lend with insufficient reserves while shifting risk to taxpayers, resulting in a crisis estimated to cost the government $160-$500 billion in saving and loan bail-outs.[200] Only in the 1990s did more systematic and effective banking deregulation occur.[201]

The three case studies just described illustrate the costs of slow and piecemeal deregulation of an industry in the wake of disruptions and the eventual cure, albeit late, of more complete economic deregulation. The authors' other two case studies illustrate the benefits from quick and substantial deregulation. In the airline industry, the disruptions caused by high fuel prices and new, competitive services were answered with sweeping economic deregulation in the Airline Deregulation Act of 1978.[202] As a result, the airline industry dramatically and efficiently restructured itself, fares decreased while more people traveled, under-served markets saw increased service, and discount services like Southwest Airlines provided new options for consumers.[203] The study estimates the benefit from airline deregulation to be $15-$18 billion annually.

Fine and de Figueiredo find the mobile telephony market to offer an even more dramatic illustration of the benefits of swift deregulation. In the early 1990s, innovations in mobile telephony induced deregulation of wireless telephony through the auctioning of "Personal Communications" spectrum, Congress and the FCC removed restriction on the number of carriers per market and phased out cellular price regulation.[204] As a result of this deregulation, wireless rates have decreased substantially while use of wireless services has

197 *Id.* at 20-21.
198 *Id.* at 12-14.
199 *Id.* at 15-17.
200 *Id.* at 18.
201 *Id.* at 19.
202 *Id.* at 20-21.
203 *Id.* at 20-21.
204 *Id.* at 23.

increased, and consumers have benefited from technological innovations driven by the competitive process.[205]

The foregoing case studies support the general conclusion that slow, piecemeal deregulation in an industry facing new competitive pressures comes only at a cost to consumers, industry, and government. In contrast, decisive deregulation in response to new competitive pressures results in social gains from innovation, investment, and efficiency while consumers also gain from the competitive effect on prices.[206] The lessons from the railroad, natural gas, banking, airlines, and wireless deregulation are to deregulate quickly and substantially when such competitive forces arise. This reasoning applies today to the U.S. telecommunications industry. The competitive pressures from wireless and cable broadband networks indicate that the past monopoly regulation of wireline telephony is no longer an appropriate paradigm.[207] The next question to be addressed is what should replace that paradigm.

### D. *A New Regulatory Approach: Emphasis on Targeted, Ex Post Enforcement*

A recommendation against substantial ex ante regulation does not mean that the U.S. telecommunications market should be without oversight or some basic "rules-of-the-road." The analysis of this Article does not, for example, necessarily imply an end to narrow rules targeted at specific, non-economic objectives like public safety (e.g. the new 911 regulations for VoIP providers) or accessibility, which might still make sense in a competitive environment. Nor does it lead to the conclusion that Congress or the FCC should eliminate competitively neutral rules that obligate competing networks to exchange traffic. This is not to say that interconnection should forever be mandatory, just that one cannot resolve the question based on the same competitive analysis that I argue to resolve the question of unbundling and retail market power. Competitors taking small market shares or offering imperfect substitutes may well discipline the price and output decisions of an incumbent firm. But interconnection may be the very thing that allows those competitors to exist in a network industry and incumbents may have little incentive to provide interconnection under conditions of asymmetric market share. Before interconnection can be declared as better left to the market than to regulatory mandate, the competitive conditions under which the market will sufficiently provide it need to be carefully identified. It may well be that an ILEC has incentive to interconnect with the wireless carriers who now serve more lines than the ILECs themselves. But whether the ILECs would interconnect

205 *Id.* at 23-24.
206 *Id.* at 26.
207 *Id.* at 27.

voluntarily with CLECs, or whether large wireless carriers would voluntarily interconnect with small, regional carriers is less certain, and such interconnection may be critical to competition and market performance.[208] Ultimately, interconnection is a point for further study and debate, which are already well under way.[209]

Most importantly, nothing in this Article's competitive analysis counsels against enjoining specific instances of conduct that proves to be harmful to competition and consumers. In fact, it is exactly such post-conduct enforcement responses that are appropriate in the current environment of the telecommunications market. It is hard for regulators or Congress to know in advance what strategies will lead to the most competitive environment or be most responsive to consumer desires. Rules designed to restrain or govern firm behavior on a prospective basis may distort competition with little expected payoff. But responding to behavior that proves anticompetitive as it arises allows authorities to prevent (and deter) harmful activity without impeding or deterring beneficial competition.

It bears mentioning at this point that just as ex ante regulations against monopoly power must evolve in the face of competition, the prospects for effective ex post enforcement against anticompetitive conduct will diminish if the relevant market reverts to a non-competitive structure. For that reason merger enforcement must play an important role in telecommunications policy. An analysis of telecommunications mergers is beyond the scope of this Article. For current purposes I simply note that preserving the independence of rival telecommunications platforms is essential future market performance and thus constitutes an important part of telecommunications policy going forward. The FCC and the antitrust agencies will have to remain vigilant about consolidation both within platforms (e.g., one wireless carrier merging with another) and across platforms (e.g., a telephone carrier with a cable operator). The kind of enforcement shown by the antitrust agencies and the FCC in such cases as the proposed Echostar/DirecTV merger[210] and proposed Worldcom/Sprint[211]

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208 One challenge for interconnection regulation is establishing a default price for interconnection. In the Telecommunications Act of 1996, Congress essentially established a marginal cost pricing rule for interconnection. 47 U.S.C. § 252(d)(2)(A)(ii) (2000) (referring to "additional" costs as the standard). As the additional or marginal costs of originating or terminating a call are very low—very close to zero—one promising solution to the interconnection pricing problem is "bill and keep," in which no carrier pays another for interconnection but instead recovers interconnection costs from its own customers. *See, e.g.*, Patrick DeGraba, *Central Office Bill and Keep as a Unified Inter-Carrier Compensation Regime*, 19 YALE J. ON REG. 37 (2002). The feasibility of such zero-price solutions suggest that the difficulties of interconnection pricing are manageable and should not be assumed to offset the potential benefits of eliminating mandatory interconnection.

209 *See, e.g.*, RANDOLPH J. MAY & RICHARD O. LEVINE, PROGRESS & FREEDOM FOUND., INTERCONNECTION WITHOUT REGULATION: LESSONS FOR TELECOMMUNICATIONS REFORM FROM FOUR NETWORK INDUSTRIES (2005), *available at* http://www.pff.org/issues-pubs/communications/books/051018Interconnection.pdf.

210 Application of EchoStar Commc'ns Corp., et al., 17 F.C.C.R. 20,559 (2002); Press Release, U.S. Dept. of Justice, Statement by R. Hewitt Pate on the Abandonment of the Hughes/EchoStar Transaction (Dec. 10, 2002), *available at* http://www.usdoj.gov/atr/public/-

merger will be essential to preserving the competition that has generated the empirical results discussed above in Part II.

1. Ex Post Competition Enforcement

The ex post enforcement regime this Article recommends is analogous to rule-of-reason scrutiny under the U.S. antitrust laws.[212] Before the courts hold a firm liable for conduct that could be anticompetitive—exclusive dealing, for example—plaintiffs must prove actual anticompetitive effects that outweigh pro-competitive benefits of the conduct.[213] There is a reluctance to bar most conduct in advance because many economic actions (excepting per se antitrust violations like price fixing) may have either beneficial or harmful effects on consumers, depending on specific circumstances. The emerging, competitive market for U.S. telecommunications warrants the same ex post, case-by-case perspective.

In recommending an antitrust-style approach I do not mean to imply that current antitrust law should necessarily establish the limits of competition policy that either antitrust agencies or sector-specific regulators apply in enforcing against anticompetitive behavior. To be sure, antitrust in its current state constitutes the essential backdrop for competition enforcement. Diligent enforcement, against both anticompetitive conduct and harmful mergers, will be important to preserve the competition among telecommunications platforms demonstrated in Part II. But in the anticompetitive practices context, there are limits to antitrust that might render the scope of prohibited behavior in a particular market too narrow to protect competition and consumer welfare. For example, the absence of any duty to deal or of a meaningful essential-facilities doctrine in U.S. antitrust law (see the *Trinko* case)[214] might hinder effective competitive enforcement in an industry in transition from regulation to unregulated competition. There may thus be good reason to give the FCC authority, where necessary to promote consumer welfare, to mandate interconnection or interoperability among networks. The question of the substance of competition policy for telecommunications is, like the more specific case of interconnection, a separate debate. But whatever the substantive boundaries turn out to be, the argument here is that competition

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press_releases/2002/200539.htm.

211 Press Release, U.S. Dept. of Justice, Justice Department Sues to Block Worldcom's Acquisition of Sprint (June 27, 2000), *available at* http://www.usdoj.gov/atr/public/press_releases-/2000/5049.htm.

212 *See, e.g.*, HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE 56-59 (2005) (discussing origins of rule-of-reason analysis in American antitrust policy).

213 *Id.* at 38, 127.

214 Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, 540 U.S. 398 (2004) (clarifying the lack of a duty to deal or of a Supreme Court-recognized essential facilities doctrine).

policy should be enforced through ex post intervention rather than ex ante regulation.

A reconsideration of the scope of ex post competition policy is particularly important for a number of specific, contemporary issues in telecommunications policy. A prime example is the question of "network neutrality" currently under active debate in the United States Congress.[215] At issue is whether Congress should require owners of physical networks—telephone companies, cable operators, and wireless carriers—to treat in a non-discriminatory manner all content and service providers that interact with consumers over their networks. Under such a regulation, a cable carrier could not, for example, offer higher speed connections (or particular terms for such connections) to some voice over Internet Protocol (VoIP) providers but not to others. The idea behind the proposed regulation is to prevent network owners from engaging in vertical discrimination that could make the Internet less accessible to content and service providers who do not own their own physical infrastructure so as to preserve the vibrant innovation in content, services, and applications that open access to the Internet has sparked.[216]

Vertical non-discrimination rules like net neutrality are not costless. They may entail costs for consumers, for producers, and for the regulatory process.[217] Given the costs of net neutrality, the proposed rule's intended benefits need to be considered in light of the transforming market structure of U.S. telecommunications. As the market becomes more competitive, the economic rationale for net neutrality rules diminishes. As physical networks compete to attract subscribers, they will have strong incentives to provide consumers with the broadest and most attractive access to the Internet's myriad offerings. Any network that offered consumers too constrained a set of choices for critical content and applications would lose customers to networks without such policies. As such, competition drives networks away from anticompetitive, anti-consumer vertical discrimination. But competition would allow discriminatory deals where they are in the interests of consumers and new producers that consumers would like to see in the marketplace. Competition is therefore preferable to regulation for determining the appropriate degree of net neutrality. The question, then, is whether the degree of competition that exists and that is likely to further develop in the reasonably foreseeable future is sufficient to offset anti-consumer vertical conduct by network owners.

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215 *See* Eric Bangeman, *Network Neutrality Legislation on its Way*, ARS TECHNIA, Mar. 2, 2006, http://arstechnica.com/news.ars/post/20060302-6304.html.

216 For a recent scholarly work critical of network neutrality but explaining the history of the debate, see Christopher Yoo, *Beyond Network Neutrality*, 19 HARV. J.L. & TECH. 1 (2005)

217 *See* DACA Regulatory Framework Working Group, *The Digital Age Communication Act's Regulatory Framework and Net Neutrality*, THE PROGRESS AND FREEDOM FOUNDATION, Mar. 2005, http://www.pff.org/issuespubs/communications/other/031707dacastmt.pdf#search='DACA-%20net%20neutrality (explaining net neutrality and its costs, and advocating a competition policy approach).

Returning to the data and the discussion of oligopoly above, there is significant rivalry in the broadband market although not enough to guarantee that market power will never be exercised. The key point, however, is that the competition that exists is likely to provide performance for consumers that is much better than monopoly; sufficiently so that the costs of net neutrality will not predictably be offset by the benefits of such ex ante non-discrimination rules. The current state of the market is unlikely to yield performance so good that one can dispense with any and all need to worry about vertical discrimination by networks. Indeed, returning to the example of retail rate deregulation in France, ARCEP expressed concern about discriminatory conduct as the relevant market was evolving, and maintained its anti-discrimination mandate for France Telecom even while deregulating rates.[218] But ARCEP also recognized that antidiscrimination rules could not be presumed necessary, and pledged to reexamine its decision regularly.[219] Similarly, the mere possibility of vertical discrimination does not automatically imply the need for ex ante network neutrality rules. In the absence of evidence that harmful economic discrimination is occurring and without a clearer understanding of the implications of placing all internet access charges on end-user consumers, the better policy may be to enforce ex post against specific conduct that is discriminatory and that is harmful to competition and to consumers. Antitrust-style, ex post enforcement can enable regulators to prevent truly harmful acts without constraining beneficial arrangements in dynamic markets related to the Internet.

Looking again at the question of the substance of ex post competition enforcement, however, it is necessary for enforcers to have sufficient legal tools to block harmful actions if such an approach is to succeed. As the point made above with regard to *Trinko* suggests, the scope of existing antitrust law might not reach far enough to achieve policy goals for telecommunications. But this is not grounds for an ex ante network neutrality rule; it is instead grounds for Congress to articulate a standard of network competition and conduct that the FCC and the U.S. antitrust agencies can enforce without being blocked by contrary precedent from general antitrust law.[220] Congress should also back this mandate up with authority for the FCC to implement regulation requiring network neutrality if, and only if, ex post enforcement proves inadequate and if, and only if, market developments over time show genuine harms to consumers and competition that can be fruitfully addressed by an ex ante rule. To peremptorily bar such regulation by the FCC regardless of market conditions makes little sense; just as little sense as jumping immediately to ex ante

218 ARCEP Decision, *surpa* note 181, at 9.

219 *Id.*

220 *See id.* at 10 for a proposal for such a legislative standard of unfair competition.

network neutrality rules under the increasingly competitive conditions of the telecommunications market.

A recent example of the ex post regulatory approach this Article recommends is the FCC's 2005 enforcement action against Madison River Communications for allegedly interfering with transmissions between its customers and VoIP provider Vonage.[221] It is beyond the scope of this Article to explore the facts or assess the merits of the FCC's case. The point of the example for current purposes is the kind of regulatory approach it represents. One solution to potential competitive discrimination is to impose rules that mandate how telecommunications carriers transport and must transmit different kinds of content and services. The other is to let competition between networks govern such performance dimensions but to punish and enjoin discrimination that proves to be anticompetitive. For the reasons discussed earlier in this Article, the latter is far preferable in dynamic and uncertain markets where the incentive distortions and unintended consequences of regulation are likely to far outweigh any consumer benefits.

2. Further Considerations for the Ex Post Model

The antitrust-like model is not perfect. Some cases will escape scrutiny altogether and some well-aimed enforcement efforts may fail. Moreover, some harm generally accrues before agencies can seek a fine or injunction. Case-by-case enforcement may in some circumstances also provide less certainty for firms about the boundaries of acceptable conduct than ex ante rules provide.[222] But these drawbacks must be weighed against the comparative costs of ex ante regulation. Also to be considered is that enforcement problems and compensation issues can be at least partially improved and addressed through effective enabling legislation and proper institutional assignment—e.g., to one of the antitrust agencies or to the FCC—of enforcement jurisdiction.[223] More to the point, ex post enforcement against specific, anticompetitive acts avoids the kind of costs (discussed above in Section II.C) that ex ante rules can create through their imposition of one-size-fits-all requirements and restrictions. As the benefits of ex ante regulation diminish with competition, the more targeted approach of ex post competition enforcement becomes more appropriate. The

221 *In re* Madison River Commc'ns, 20 F.C.C.R. 4295 (2005).

222 The concern about uncertainty should not be overstated. There is a substantial body of precedent and experience with antitrust enforcement that provides guidance to firms about what constitutes anticompetitive behavior, and which has mitigated uncertainty in antitrust enforcement. There is no reason to expect that over time uncertainty need be any greater a problem for industries in which antitrust-style enforcement comes to supplant regulation than it has been in antitrust generally.

223 The question of institutional jurisdiction over enforcement of competition policy in the telecommunications industry is beyond the scope of this paper. An excellent discussion of this issue can be found in the final chapter of JONATHAN NUECHTERLEIN & PHILIP WEISER, DIGITAL CROSSROADS: AMERICAN TELECOMMUNICATIONS POLICY IN THE INTERNET AGE (2005).

empirical evidence that the U.S. telecommunications market has reached that crossroad is compelling.

## IV. Conclusion

As telecommunications markets in the United States transform, regulation has remained essentially static in its fundamental approach and monopoly assumptions. To be sure, regulation has changed in its emphasis and particulars. But at the state level and in several important areas of federal regulation, rules remain whose motivating, monopoly conditions no longer hold. As long as the conventional monopoly model of regulation remains in place, it risks increasing harm to the incentives of incumbents and new entrants alike to invest and compete in ways that benefit American consumers. A shift to a regulatory approach that focuses on competition and—like antitrust enforcement—intervenes ex post to punish and enjoin anticompetitive conduct, is more appropriate to the competitive environment. When supported by carefully targeted, competitively neutral regulation to promote basic interconnection, ensure public safety, and protect distributional objectives, the ex post approach will mitigate risks and allow consumers to gain more from competition than retention of conventional regulation will allow.